DIALOG
08/486,066
6-23-96
CHK'D, AM

t s9/5/1-43;ds

9/5/1 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

93132715 CA: 93(13)132715s JOURNAL
Carbon-14 labeling of 1'-(3-(2-chloroethyl)-3-nitrosoureido)-2',3'-O-isopropylidene-5'-O-(4-nitro benzoyl)-.alpha.-, and .beta.-.+-.d-ribofuranose (RFCNU)
AUTHOR(S): Madelmont, J. C.; Moreau, M. F.; Parry, D.; Godeneche, D.; Imbach, J. L.
LOCATION: INSERM, 63005, Clermont-Ferrand, Fr.
JOURNAL: J. Labelled Compd. Radiopharm. DATE: 1980 VOLUME: 17 NUMBER: 2 PAGES: 203-13 CODEN: JLCRD4 ISSN: 0362-4803
LANGUAGE: French SECTION:
CA033005 Carbohydrates
CA001XXX Pharmacodynamics
IDENTIFIERS: anticancer nitrosoureidonitrobenzoylribose carbon 14 labeled , ribose nitrosoureido carbon 14 labeled
CAS REGISTRY NUMBERS:
2002-24-6 chlorination of
74848-90-1P 74848-91-2P 74848-95-6P 74848-96-7P prepn. and nitrosation {Δ
74848-92-3P 74855-52-0P prepn. and reaction of, with carbon-14 labeled chloroethylamine
65163-00-0P 65163-01-1P prepn. and reaction of, with carbon-14 labeled nitrobenzoyl chloride
57274-19-8P prepn. and reaction of, with carbon-14 labeled silver isocyanate
52773-90-7P prepn. and reaction of, with isocyanatoribofuranose
74848-89-8P prepn. and reaction of, with substituted bromoribofuranose 74848-88-7P prepn. and reaction of, with substituted ribofuranose 74848-93-4P 74848-94-5P 74848-97-8P 74848-98-9P prepn. of

9/5/2 (Item 2 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)

92147067 CA: 92(17)147067k JOURNAL
Synthesis of tritium-labeled 2-deoxy-D-ribose and its derivatives AUTHOR(S): Zolyomi, Gabor; Banfi, Dezso; Kuszmann, Janos LOCATION: Inst. Drug Res., H-1045, Budapest, Hung.
JOURNAL: Acta Chim. Acad. Sci. Hung. DATE: 1979 VOLUME: 101 NUMBER: 4 PAGES: 323-6 CODEN: ACASA2 ISSN: 0001-5407
LANGUAGE: English SECTION:
CA033002 Carbohydrates
IDENTIFIERS: deoxyribose tritium labeled, ribose deoxy tritium labeled DESCRIPTORS:
Carbohydrates,preparation...
prepn. of, of tritiated deoxyribose

CAS REGISTRY NUMBERS:
73108-12-0P prepn. and deacylation of
73108-13-1P prepn. and hydrolysis of
73108-14-2P prepn. and reaction of, with aniline
73108-11-9P prepn. and reaction of, with methanol
73108-15-3P 73108-16-4P 73108-17-5P prepn. of
3945-17-3 reaction of, with tritium chloride
533-67-5 tritiation of

9/5/3 (Item 3 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 1996 American Chemical Society. All rts. reserv.

74142214 CA: 74(25)142214z JOURNAL
Preparation of tritium-labeled 2-deoxy-D-ribose
AUTHOR(S): Vdovenko, V. M.; Bobrova, V. N.; Gordeeva, L. S.; Dedova, V. K.
LOCATION: USSR
JOURNAL: Radiokhimiya DATE: 1971 VOLUME: 13 NUMBER: 1 PAGES: 113-17 CODEN: RADKAU LANGUAGE: Russian
SECTION:
CA833000 Carbohydrates
IDENTIFIERS: deoxyribose tritiated, labeling deoxypentose tritium CAS REGISTRY NUMBERS:
32453-91-1P 32453-92-2P 32453-93-3P prepn. of

9/5/4 (Item 4 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 1996 American Chemical Society. All rts. reserv.

68096056 CA: 68(21)96056a JOURNAL
Preparation of tritium-labeled 2-deoxy-D-erythropentose
AUTHOR(S): Vdovenko, V. M.; Bobrova, V. N.; Gordeeva, L. S.; Dedova, V. K.; Zharkov, A. V.; Seleznev, V. G.
JOURNAL: Radiokhimiya DATE: 1967 VOLUME: 9 NUMBER: 6 PAGES: 673-81 CODEN: RADKAU LANGUAGE: Russian
SECTION:
CA833000 Carbohydrates
IDENTIFIERS: TRITIUM LABELED DEOXYRIBOSE, RIBOSE LABELED
DESCRIPTORS:
D-erythro-Pentose,2-deoxy-,labeled with tritium...
preparation of

9/5/5 (Item 1 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)
(c) 1996 BIOSIS. All rts. reserv.

3706049 BIOSIS Number: 74005912
PHOTOSYNTHESIS UNDER OSMOTIC STRESS EFFECT OF HIGH SOLUTE CONCENTRATIONS ON THE PERMEABILITY PROPERTIES OF THE CHLOROPLAST ENVELOPE AND ON ACTIVITY OF STROMA ENZYMES

KAISER W M; HEBER U
BOTANISCHES INST. DER UNIV., MITTLERER DALLENBERGWEG 64, D-8700 WUERZBURG, F.R.G.
PLANTA (BERL) 153 (5). 1981 (RECD. 1982). 423-429. CODEN: PLANA Full Journal Title: PLANTA (Berlin)
Language: ENGLISH

Increasing the sorbitol concentration in a suspension of intact chloroplasts [Spinacia oleracea L. cv. Atlanta] induced a fast, transient and not very specific efflux of metabolites from chloroplasts to the medium. Stroma proteins were retained by the chloroplasts. Within the first 30 s following hypertonic stress, the chloroplast volume decreased according to the Boyle-Mariotte relation. A subsequent and transient incrYx>X suggested some influx of external solute. Dark reactions of intact chloroplasts such as starch degradation and formation of labeled 3-phosphoglycerate from dihydroxyacetone phosphate or ribose-5-phosphate and 14CO2 were inhibited at low water potentials. After chloroplast rupture, the activity of stromal enzymes was decreased by high solute concentrations. Ribulose bisphosphate carboxylase exhibited a decrease of Vmax, while KmCO2 remained unaltered. With sorbitol, sucrose, glycerol or glycinebetaine, 50% inhibition of enzymes was observed at osmotic potent-ials between 40 and 50 bar, with ethyleneglycol at .apprx. 70 bar. With salts such as KCl, 50% inhibition occurred at 15-20 bar. 4. A comparison between inhibition of photosynthesis in intact chloroplasts and inhibition of enzymes in stroma extracts by solutes supports the notion that inhibition of photosynthesis at high osmotic potentials is mainly a solute effect. Another factor contributing to inhibition of photosynthesis in isolated chloroplasts is the loss of intermediates and cofactors which occurs during rapid osmotic dehydration.

Descriptors/Keywords: SPINACIA-OLERACEA CULTIVAR ATLANTA RIBULOSE BIS PHOSPHATE CARBOXYLASE
Concept Codes:
*02504 Cytology and Cytochemistry-Plant
*10508 Biophysics-Membrane Phenomena
*10808 Enzymes-Physiological Studies
*51502 Plant Physiology, Biochemistry and Biophysics-Water Relations *51506 Plant Physiology, Biochemistry and Biophysics-Photosynthesis *51518 Plant Physiology, Biochemistry and Biophysics-Enzymes 10011 Biochemistry-Physiological Water Studies (1970-) 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 53008 Horticulture-Vegetables
Biosystematic Codes:
25795 Chenopodiaceae
Super Taxa:
Plants; Vascular Plants; Spermatophytes; Angiosperms; Dicots

9/5/6 (Item 2 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3652604 BIOSIS Number: 73044971
THE CONTINUOUS GROWTH OF VERTEBRATE CELLS IN THE ABSENCE OF SUGAR WICE B M; REITZER L J; KENNELL D
DEP. MICROBIOL. IMMUNOL., WASH. UNIV. SCH. MED., ST. LOUIS, MO. 63110. J BIOL CHEM 256 (15). 1981. 7812-7819. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
Language: ENGLISH

Cultured HeLa [human cervical carcinoma] cells were grown indefinitely in the complete absence of sugar (< 10 .mu.M) when the medium was supplemented with specific nucleosides at .gtoreq. 1 mM. Uridine or cytidine alone was sufficient and gave growth rates comparable to those on 10 mM glucose, while most purine ribosides and all deoxyribosides tested were ineffective. Uridine could also substitute for sugar to support continuous growth of mouse [fibroblast] L, early passage human fibroblast [diploid 6M37 and 6M412], primary chicken embryo fibroblasts and numerous other cell lines, including mouse NCTC 2071 [derived from L-929 fibroblast] [and rat hepatoma NISI-67 cell] which grew in a completely defined medium, lacking serum as well as sugar. Uridine was depleted from the sugar-free medium of HeLa cells at 2 nmol/min per mg of protein; this rate is about 10 times faster than the depletion rate of hexose during growth on 2 mM fructose and 1/4 the rate on 10 mM glucose. About 40% of the metabolized [U-14C]uridine carbon was lost to the medium as a result of the release of .apprx. 90% of the uracil moiety. All 4 nucleotide components of RNA were labeled by [U-14C]uridine but only pyrimidines were labeled by [2-14C]uridine. Close to 6% of the 14C from either [U-14C] or [2-14C]uridine was found in the pyrimidine nucleotides. Apparently, de novo pyrimidine synthesis is at least partially shut off. The incorporation of formate or glycine into nucleic acids was at normal rates, suggesting that purines were synthesized by the normal pathway from .alpha.-D-5-P[phosphate]-ribosyl-P2 [diphosphate]. All of the uridine C depleted from the medium could be accounted for in the various 5% trichloroacetic acid fractions of the cells (cold soluble pools, hot soluble and precipitable macromolecules) plus nonuridine compounds in the medium and released CO2. While the uracil moiety was only present in pyrimidine nucleotides or medium uracil, the ribose moiety was found in all fractions. Only about 1/4 of this ribose ended in nucleic acids. Most of the remainder was found in small molecules in the cell or media with .apprx. 6% present in protein and lipid. About 14% of the ribose carbon was released as CO2. The very low level of 14C in lactate, which is derived from pyruvate, as well as the low concentration of G-6-P in sugar-free cells strongly suggested that this CO2 was derived exclusively from the oxidative arm reactions of the pentose cycle rather than from the oxidation of pyruvate carbon in the citrate cycle. From the amount of CO2 released, it was calculated that .apprx. 1/2 of the ribose-5-P [phosphate] derived from uridine makes one or more complete cycles back to ribose-5-P to give an oxidative arm flux of .apprx. 1/2 the depletion rate of uridine. Using the kinetic equations

for the 2 dehydrogenase reactions of the pentose cycle and the measured concentrations of G-6-P and 6-P-gluconate as well as the NADP+/NADPH ratio, the flux through these reactions was calculated to be equal to that on 10 mM glucose growth; this flux is also 1/2 the rate of uridine depletion. Uridine apparently provides all necessary functions of sugar as well as glucose does and probably better than any other sugar does. Descriptors/Keywords: HUMAN CERVICAL CARCINOMA HELA CELL DI PLOID FIBROBLAST GM-37 CELL GM-412 CELL PRIMARY CHICKEN EMBRYO FIBROBLAST MOUSE FIBROBLAST L-929 DERIVED NCTC-2071 CELL FIBROBLAST L CELL RAT HEPATOMA NISI-67 CELL DEHYDROGENASE KINETICS NUCLEOSIDE SUPPLEMENTATION SERUM RNA CARBON DI OXIDE FORMATE GLYCINE PROTEIN LIPID ALPHA-D-5 PHOSPHATE RIBOSYL DI PHOSPHATE LACTATE PYRUVATE CARBON OXIDATION PENTOSE CYCLE CITRATE CYCLE GLUCONATE NADP NADPH RATIO

Concept Codes:

*02506 Cytology and Cytochemistry-Animal
*02508 Cytology and Cytochemistry-Human
*10510 Biophysics-Bioenergetics: Electron Transport and Oxidative Phosphorylation
*13003 Metabolism-Energy and Respiratory Metabolism
*13004 Metabolism-Carbohydrates
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*13220 Nutrition-Carbohydrates (1972-)
*24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
*32500 Tissue Culture, Apparatus, Methods and Media
06504 Radiation-Radiation and Isotope Techniques
10012 Biochemistry-Gases (1970-)
10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10068 Biochemical Studies-Carbohydrates
10802 Enzymes-General and Comparative Studies; Coenzymes
10804 Enzymes-Methods
10806 Enzymes-Chemical and Physical
13006 Metabolism-Lipids
13012 Metabolism-Proteins, Peptides and Amino Acids
13202 Nutrition-General Studies, Nutritional Status and Methods 14001 Digestive System-General; Methods
15002 Blood, Blood-Forming Organs and Body Fluids-Blood and Lymph Studies
16501 Reproductive System-General; Methods
18001 Bones, Joints, Fasciae, Connective and Adipose Tissue-General; Methods
24006 Neoplasms and Neoplastic Agents-Biochemistry
25502 Developmental Biology-Embryology-General and Descriptive 32600 In Vitro Studies, Cellular and Subcellular

Biosystematic Codes:

85536 Galliformes
86215 Hominidae
86375 Muridae

Super Taxa:

Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Birds; Mammals; Primates; Humans; Nonhuman Mammals; Rodents

9/5/7 (Item 3 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3649444 BIOSIS Number: 73041811
NAD BINDING AND PROMOTION OF ENZYME ACTIVITY MODEL BASED ON AFFINITY LABELING OF 3-ALPHA 20-BETA HYDROXY STEROID DEHYDROGENASE WITH A NUCLEOSIDE SWEET F; SAMANT B R
REPRODUCTIVE BIOLOGY SECTION DEPARTMENT OBSTETRICS AND GYNECOLOGY, WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, ST. LOUIS, MISSOURI 63110. BIOCHEMISTRY 20 (18). 1981. 5170-5173.
CODEN: BICHA
Full Journal Title: Biochemistry
Language: ENGLISH
5'-[p-(Fluorosulfonyl)benzoyl]adenosine (FSA) was used to affinity-label the NADH binding region of [Streptomyces hydrogenans] 3.alpha.,20.beta.-hydroxysteroid dehydrogenase (3.alpha.,20.beta.-HSD) to further test the hypothesis [Sweet et Samant (1980)] that 3.alpha. and 20.beta. activities occur at the same active site. Incubation of 3.alpha.,20.beta.-HSD (0.45 .mu.M) with FSA (125 .mu.M) at pH 7.40 and 0.degree. C caused simultaneous loss of 3.alpha. and 20.beta. activities by a 1st-order kinetic process, with t1/2 = 300 min for both activities. Dinucleotides and adenosine mononucleotides which acted as competitive inhibitors protected 3.alpha.,20.beta.-HSD against inactivation by FSA in a concentration-dependent manner, in the order reduced nicotinamide dinucleotide phosphate > oxidized nicotinamide dinucleotide phosphate > adenosine diphosphate-ribose > adenosine diphosphate > (AMP) > adenosine. Oxidized and reduced nicotinamide mononucleotides (NMH and NMNH) and steroid substrates did not protect 3.alpha.,20.beta.-HSD against affinity labeling by FSA. Although NMN was not a competitive inhibitor of 3.alpha.,20.beta.-HSD, NMN with AMP and also AMP with NMNH produced positive cooperativity for competitive inhibition of 3.alpha.,20.beta.-HSD. The results from FSA affinity labeling of the cofactor region confirm that both 3.alpha. and 20.beta. activities share the same active site of 3.alpha.,20.beta.-HSD and suggest a model of cofactor binding and promotion of enzyme activity. The adenosine 5'-phosphate component anchors the NAD or NADH to an adenosine domain in the cofactor binding region. The nicotinamide nucleotide component then carries out the H-transfer reaction at a neighboring domain near the steroid binding region.
Descriptors/Keywords: STREPTOMYCES-HYDROGENANS 5'-P FLUOROSULFONYLBENZOYL ADENOSINE ACTIVE SITE NMN NMNH DI NUCLEOTIDES ADENOSINE MONO NUCLEOTIDES Concept Codes:
*10802 Enzymes-General and Comparative Studies; Coenzymes
*10806 Enzymes-Chemical and Physical

*13008 Metabolism-Sterols and Steroids
*31000 Physiology and Biochemistry of Bacteria
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 10067 Biochemical Studies-Sterols and Steroids
10506 Biophysics-Molecular Properties and Macromolecules
10804 Enzymes-Methods
Biosystematic Codes:
05820 Micromonosporaceae (1979-)
Super Taxa:
Microorganisms; Bacteria

9/5/8 (Item 4 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3450997 BIOSIS Number: 72083388
ADP RIBOSYLATION OF PROTEINS IN NONINFECTED ESCHERICHIA-COLI CELLS SKORKO R; KUR J
ZAKLAD BIOCHEMII, INST. BIOL., UNIWERSYTET GDANSKI, ULICA KLADKI 24, PL-80-822 GDANSK, POLAND.
EUR J BIOCHEM 116 (2). 1981. 317-322. CODEN: EJBCA
Full Journal Title: European Journal of Biochemistry
Language: ENGLISH
Partially purified enzymatic fractions from extracts of E. coli B/r catalyze transfer of the isotope label from [adenine-2,8-3H]NAD+ to some bacterial proteins, as well as to hen egg white lysozyme. The radioactive group in the modified lysozyme was identified as mono(ADP-ribose). Several bacterial proteins were labeled in vivo with 32P; the presence of the label in the form of an ADP-ribosyl group was shown in one of them.
Descriptors/Keywords: HEN EGG WHITE LYSOZYME PROTEIN ENZYMATIC FRACTION NAD MONO ADP RIBOSE PHOSPHORUS-32
Concept Codes:
*10806 Enzymes-Chemical and Physical
*10808 Enzymes-Physiological Studies
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10054 Biochemical Methods-Proteins, Peptides and Amino Acids 10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 10506 Biophysics-Molecular Properties and Macromolecules 16504 Reproductive System-Physiology and Biochemistry 32000 Microbiological Apparatus, Methods and Media
33504 Virology-Bacteriophage
Biosystematic Codes:
02110 Bacterial Viruses-Unspecified (1981-)
04810 Enterobacteriaceae (1979-)
85536 Galliformes

Super Taxa:
Microorganisms; Viruses; Bacteria; Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Birds

9/5/9 (Item 5 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3418304 BIOSIS Number: 72050695
IMMUNO FLUORESCENT STAINING OF POLY ADP RIBOSE IN-SITU IN HELA CELL CHROMOSOMES IN THE M PHASE
KANAI Y; TANUMA S; SUGIMURA T
DEP. MOL. ONCOL., INST. MED. SCI., UNIV. TOKYO, MINATO-KU, TOKYO 108, JPN.
PROC NATL ACAD SCI U S A 78 (5). 1981. 2801-2804. CODEN: PNASA Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Randomly and synchronously growing HeLa [human cervical carcinoma] cells were tested for poly(ADP-ribose) by direct and indirect immunofluorescent antibody techniques. Fluorescence of poly(ADP-ribose) was seen only in the nuclei intact cells when the direct immunofluorescent antibody technique was used in both the nuclei and cytoplasm when the indirect immunofluorescent antibody technique was used; fluorescence in the cytoplasm was nonspecific. When randomly or synchronously growing HeLa cells were fixed in acetone and treated with DNase I before incubation with fluorescein-labeled antibody, intense fluorescence was observed only in the nuclei when the direct immunofluorescent staining technique was used. Addition of 3-aminobenzamide, a potent inhibitor of poly(ADP-ribose) polymerase, with the DNase I completely abolished the fluorescence in the nuclei of synchronously and randomly growing HeLa cells, except in M-phase nuclei. Apparently poly(ADP-ribose) can be synthesized even in the nuclei of acetone-fixed HeLa cells from endogenous NAD+ during incubation with fluorescent antibody and the fluorescence of chromosomes of HeLa cells in the M phase is, due to the in situ presence of poly(ADP-ribose), not to poly(ADP-ribose) synthesized during incubation with antibody.
Descriptors/Keywords: HUMAN CERVICAL CARCINOMA CELL DNASE I TREATMENT FLUORESCEIN LABELED ANTIBODY 3 AMINO BENZAMIDE POLY ADP RIBOSE POLYMERASE INHIBITOR NAD
Concept Codes:
*02508 Cytology and Cytochemistry-Human
*10300 Replication, Transcription, Translation
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
*34502 Immunology and Immunochemistry-General; Methods 01056 Microscopy Techniques-Histology and Histochemistry 10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and

Amino Acids 10504 Biophysics-General Biophysical Techniques
10802 Enzymes-General and Comparative Studies; Coenzymes
10804 Enzymes-Methods
16501 Reproductive System-General; Methods
24006 Neoplasms and Neoplastic Agents-Biochemistry
32500 Tissue Culture, Apparatus, Methods and Media
32600 In Vitro Studies, Cellular and Subcellular
Biosystematic Codes:
86215 Hominidae
Super Taxa:
Animals; Chordates; Vertebrates; Mammals; Primates; Humans

9/5/10 (Item 6 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3331037 BIOSIS Number: 71053436
ANALYSIS OF PHOSPHORYL TRANSFER MECHANISM AND CATALYTIC CENTER GEOMETRIES OF TRANSPORT ATPASE BY MEANS OF SPIN LABELED ATP
STRECKENBACH B; SCHWARZ D; REPKE K R H
DEP. BIOMEMBR., CENT. INST. MOL. BIOL., ACAD. SCI. GERMAN DEMOCRATIC REPUBLIC, BERLIN-BUCH, E. GER.
BIOCHIM BIOPHYS ACTA 601 (1). 1980. 34-46. CODEN: BBACA
Full Journal Title: Biochimica et Biophysica Acta
Language: ENGLISH
Spin-labeled ATP [3'-O-(1-oxyl-2,2,5,5-tetramethyl-3-carbonyl pyrrolidine)-ATP, SL-ATP] is used to study the occurrence of an associative phosphorane mechanism for the phosphoryl transfer from ATP to the transport-ATPase protein, and the presence of 2 geometrically unequal catalytic centers in the 2 catalytic peptide chains deduced to explain the existence of 2 K'D(ATP) values under equilibrium conditions and 2 Km(ATP) values under turnover conditions. In the presence of Na+, K+ and Mg2+, SL-ATP is not hydrolyzed by transport-ATPase from 3 different sources [pig heart, brain and kidney]. In the presence of Na+ and Mg2+, SL-ATP reacts initially like ATP with the enzyme, as indicated by the production of a similar ouabain-binding protein conformation. With both nucleotides, this initial reaction includes the formation of the covalent enzyme-nucleotide complex through nucleophilic attack of the aspartate carboxyanion of the catalytic center on the terminal phosphorus atom of the triphosphate chain. This produces the ouabain-binding conformation of the enzyme. Unlike ATP, the covalent enzyme-SL-ATP complex resists further transformation. In the presence of Na+, K+ and Mg2+, the influence of SL-ATP on ATP hydrolysis by transport-ATPase depends on the ATP concentration chosen. At low ATP concentration, when the enzyme works as Na+-ATPase, SL-ATP does not affect the rate of ATP cleavage. At high ATP concentration when the enzyme works as (Na+ + K+)-ATPase, SL-ATP reduces the rate of ATP hydrolysis to the level of Na+-ATPase activity, apparently due to the formation of the covalent enzyme-SL-ATP complex. SL-ATP in the covalent enzyme-SL-ATP complex shows an ESR spectrum which is indistinguishable

regarding the overall shape, the rotational correlation time, .tau., and the hyperfine coupling constant, aN, from the ESR spectrum of free SL-ATP. Consequently, the dimensions of the catalytic center cleft of transport-ATPase provide the labelel group of SL-ATP, opposite to its 3'-O-esterification site at the ribose moiety, in a wide-cleft groove, enough free space for an essentially unhindered rotational mobility within an aqueous environment like that of the bulk medium. Judged from literature data, similarly wide grooves exist in the catalytic center clefts of mitochondrial and myosin ATPases. The structural unit forming the binding site for the AMP moiety of ATP in ATPases is apparently similar to the structural unit forming the binding site for the AMP moiety of NAD and ADP in several dehydrogenases and kinases.
Descriptors/Keywords: PIG HEART BRAIN KIDNEY
Concept Codes:
*10508 Biophysics-Membrane Phenomena
*10808 Enzymes-Physiological Studies
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 10069 Biochemical Studies-Minerals
14504 Cardiovascular System-Physiology and Biochemistry
15504 Urinary System and External Secretions-Physiology and Biochemistry
20504 Nervous System-Physiology and Biochemistry
Biosystematic Codes:
85740 Suidae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Artiodactyls

9/5/11 (Item 7 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3304657 BIOSIS Number: 71027056
ISOLATION OF CYTO KININ BINDING PROTEIN FROM PLANT TISSUES BY AFFINITY CHROMATOGRAPHY
CHEN C-M; MELITZ D K; PETSCHOW B; ECKERT R L
SCI. DIV., UNIV. WIS.-PARKSIDE, KENOSHA, WIS. 53141, USA. EUR J BIOCHEM 108 (2). 1980. 379-388. CODEN: EJBCA
Full Journal Title: European Journal of Biochemistry
Language: ENGLISH
Cytokinin-binding protein was isolated from tobacco [Nicotiana tabacum cv. Wisconsin 38] culture cells and purified by bioaffinity and Sephadex G-200 column chromatographies. The affinity column was prepared by coupling periodate-oxidizing N6-(.DELTA.2-isopentenyl)adenosine to cyanogen-bromide- activated Sepharose 4B with adipic acid dihydrazide as a spacer arm, followed by borohydride reduction of the oxidized ribose moiety of the cytokinin riboside. The amount of cytokinin molecule coupled to the gel

ranged 6-7 .mu.mol/ml gel and the coupling reaction proceeded most efficiently in the pH range of 5-6. The binding capacity of the column was .apprx. 380 .mu.g protein/ml wet gel. The amount of binding protein isolated depended upon the age of tissues. Sephadex G-200 chromatographic filtration of the absorbed fraction from the affinity column yielded a glycoprotein and protein fractions with molecular mass of 123,000 and 8500 .+-. 300, respectively. Results of binding experiments with high and low specific activities of radioactive N6-(.DELTA.2-isopentenyl)adenine at different concentrations indicate the presence of at least 2 cytokinin-binding sites in the protein fraction. The high-affinity site is heat-labile and has high affinity (apparent Kd of 8.8 .times. 107 M) towards cytokinins. The binding of cytokinin to this site is affected by ionic strength and pH. Tests for binding specificity showed that biologically inactive adenine and cytokinin analogs were ineffective as competitors, whereas biologically active cytokinins competed for the binding of 3H-labeled N6-(.DELTA.2-isopentenyl)adenine. The order of effectiveness of the cytokinins tested in the competing binding assay follows only partially the reported cytokinin activity order of the tobacco assay. If the binding protein is indeed involved in the cytokinin action in vivo, then the regulatory action of the hormone may be expressed by several mechanisms.
Descriptors/Keywords: NICOTIANA-TABACUM CULTIVAR WISCONSIN 38 ASSAY GLYCO PROTEIN N-6-DELTA-2 ISO PENTENYL ADENINE
Concept Codes:
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10506 Biophysics-Molecular Properties and Macromolecules
*51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances *51524 Plant Physiology, Biochemistry and Biophysics-Apparatus and Methods
06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10054 Biochemical Methods-Proteins, Peptides and Amino Acids 10058 Biochemical Methods-Carbohydrates
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10068 Biochemical Studies-Carbohydrates
10504 Biophysics-General Biophysical Techniques
12100 Movement (1971-)
52514 Agronomy-Oil Crops
Biosystematic Codes:
26775 Solanaceae
Super Taxa:
Plants; Vascular Plants; Spermatophytes; Angiosperms; Dicots

9/5/12 (Item 8 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3119179 BIOSIS Number: 70069086
SEQUENCE OF HUMAN GLYCINE TRANSFER RNA ANTI CODON CCC DETERMINATION BY A NEWLY DEVELOPED THIN LAYER READOUT SEQUENCING

TECHNIQUE AND COMPARISON WITH OTHER GLYCINE TRANSFER RNA
GUPTA R C; ROE B A; RANDERATH K
DEP. PHARMACOL., BAYLOR COLL. MED., HOUSTON, TEX. 77030, USA.
BIOCHEMISTRY 19 (8). 1980. 1699-1705. CODEN: BICHA
Full Journal Title: Biochemistry
Language: ENGLISH
The sequence of .**GRAPHIC**. from human placenta was determined by a newly developed thin-layer readout sequencing technique. This technique enabled the display and identification of about 93% of the major and the modified nucleotides in the RNA chain. The remaining positions were determined by methods entailing fingerprinting of 3'-terminally 3H-labeled oligonucleotide derivatives and base-specific enzymatic cleavages. The sequence of human .**GRAPHIC**. was compared with the sequences of human .**GRAPHIC**. and 4 other eukaryotic glycine tRNA [human, silkworm, wheat germ and yeast]. Human .**GRAPHIC**. appears to be unusually rich in ribose-methylated nucleosides. Another unusual feature of this tRNA, which is shared with human .**GRAPHIC**. but not with other eukaryotic glycine tRNA, is the presence of 2 methylated nucleosides in its amino acid acceptor stem. The T-arm sequence of all glycine tRNA from higher eukaryotes was completely conserved, indicating an important as yet undetermined function of this particular region of these RNA. In all animal glycine tRNA sequenced to date, the base between the D stem and the anticodon stem appears capable of forming a secondary base pair with the 1st base of the variable arm, implying the presence of a 6th Watson-Crick base pair in the anticodon stem of these tRNA.
Descriptors/Keywords: SILKWORM WHEAT GERM YEAST HUMAN PLACENTA
Concept Codes:
*03504 Genetics and Cytogenetics-Plant
*03506 Genetics and Cytogenetics-Animal
*03508 Genetics and Cytogenetics-Human
*10010 Comparative Biochemistry, General
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10506 Biophysics-Molecular Properties and Macromolecules 06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10504 Biophysics-General Biophysical Techniques
10804 Enzymes-Methods
12100 Movement (1971-)
16504 Reproductive System-Physiology and Biochemistry
25502 Developmental Biology-Embryology-General and Descriptive
64076 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Insecta-Physiology
Biosystematic Codes:
15000 Fungi-Unspecified
25305 Gramineae
75330 Lepidoptera
86215 Hominidae
Super Taxa:
Microorganisms; Plants; Nonvascular Plants; Fungi; Vascular

Plants; Spermatophytes; Angiosperms; Monocots; Animals; Invertebrates; Arthropods; Insects; Chordates; Vertebrates; Mammals; Primates; Humans

9/5/13 (Item 9 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3098645 BIOSIS Number: 70048552
CARBON-14 LABELED P-1 P-3-5' GUANOSYL-5 ADENOSYL TRI PHOSPHATE PREPARATION OF THE CAP PARENT COMPOUND AND ITS CATABOLIC PROPERTIES TOWARDS RAT LIVER SUB CELLULAR FRACTIONS
BORNEMANN S; SCHLIMME E
LAB. BIOL. CHEM. FACHGEBIET ORGAN. CHEM., UNIV., GASAMTHOCHSCH., WARBURGER STR. 100, BAUTEIL J, D-4790 PADERBORN, W. GER.
Z NATURFORSCH TEIL C BIOCHEM BIOPHYS BIOL VIROL 35 (1-2). 1980. 57-64. CODEN: ZNFCA
Full Journal Title: Zeitschrift fuer Naturforschung Teil C Biochemie Biophysik Biologie Virologie
Language: GERMAN
The chemical preparation of 14C-labeled P1, P3-(5'-guanosyl-5"-adenosyl)t riphosphate (1) which is the parent compound of 5'-terminal cap structures of most eukaryotic mRNAs is reported. Incubation experiments of cap (1)- and non cap-structured nucleotides as Ap2A as well as their ribose ring opened derivatives with rat liver subcellular fractions show that capdegrading nucleases being able to unblock 5' termini are present in nuclei but not in mitochondria.
Descriptors/Keywords: NUCLEI MESSENGER RNA CAP STRUCTURES
Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *13014 Metabolism-Nucleic Acids, Purines and Pyrimidines 06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 10808 Enzymes-Physiological Studies
14004 Digestive System-Physiology and Biochemistry
Biosystematic Codes:
86375 Muridae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Rodents

9/5/14 (Item 10 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3053222 BIOSIS Number: 70003129
EFFECT OF CLOFIBRATE ON CARBON DI OXIDE FIXATION INTO GLYCOGEN AND FATTY-ACIDS VIA THE LEUCINE CATABOLISM PATHWAY IN

TETRAHYMENA-PYRIFORMIS BLUM J J
DEP. PHYSIOL., DUKE UNIV. MED. CENT., DURHAM, N.C. 27110, USA.
BIOCHIM BIOPHYS ACTA 628 (1). 1980. 46-56. CODEN: BBACA Full
Journal Title: Biochimica et Biophysica Acta
Language: ENGLISH

T. pyriformis were grown to stationary phase and then incubated for 17 h with 0.21 mM clofibrate, a concentration that causes considerable growth inhibition when added to exponentially growing cells. After the clofibrate treatment, the cells were resuspended in a salt solution and the incorporation of label from [1-14C]leucine, [1-14C]tyrosine, [1-14C]pyruvate and [14C]bicarbonate into glycogen and into the fatty acid and glycerol moieties of lipids was measured. Each of these substrates yields 14CO2 at an early step of its catabolism, so that incoporation of label into these products is a measure of CO2 fixation. Clofibrate-treated cells incorporated a 2- or more-fold label from leucine, tyrosine and bicarbonate into the fatty acid moieties of the lipids than did control cells, but only slightly more into the glycerol moiety. Because the only pathway for CO2 fixation into fatty acids in Tetrahymena is via leucine degradation, these results demonstrate that clofibrate increases CO2 fixation via the leucine degradative pathway. Clofibrate treatment reduced 14CO2 formation from [1-14C]-labeled glucose, ribose, and glycerol by about 30-40%, but not from [1-14C]-labeled glyoxylate, acetate, hexanoate or octanoate. Incorporation of label from each of these substrates (and from tyrosine and leucine) into glycogen was increased (1.2-fold for glucose, up to 3.2-fold for octanoate) by clofibrate treatment. In addition to the increase in 14CO2 fixation via the leucine catabolic pathway, these results show that clofibrate does not appreciably alter flux through the Krebs cycle or the glyoxylate bypass, but increases glyconeogenic capacity and inhibits glycolytic capacity.

Descriptors/Keywords: METABOLIC-DRUG
Concept Codes:
*10012 Biochemistry-Gases (1970-)
*13003 Metabolism-Energy and Respiratory Metabolism
*13004 Metabolism-Carbohydrates
*13012 Metabolism-Proteins, Peptides and Amino Acids
*22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
*25508 Developmental Biology-Embryology-Morphogenesis, General
*64002 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Protozoa
04500 Mathematical Biology and Statistical Methods
06504 Radiation-Radiation and Isotope Techniques
10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10068 Biochemical Studies-Carbohydrates
Biosystematic Codes:
35100 Ciliata
Super Taxa:
Microorganisms; Animals; Invertebrates; Protozoans

9/5/15 (Item 11 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3026948 BIOSIS Number: 69064355
CHARACTERIZATION OF DISTINCT 5' TERMINAL CAP STRUCTURES OF ADENOVIRUS TYPE 2 EARLY MESSENGER RNA AND KB CELL MESSENGER RNA
HASHIMOTO S; PURSLEY M H; WOLD W S M; GREEN M
INST. MOL. VIROL., ST. LOUIS UNIV. MED. SCH., ST. LOUIS, MO. 63110, USA. BIOCHEMISTRY 19 (2). 1980. 294-300. CODEN: BICHA
Full Journal Title: Biochemistry
Language: ENGLISH
The early genes of the adenovirus 2 [Ad2] DNA genome (MW 23 .times. 106) are organized in 4 regions (E1-E4)1 and are transcribed from 4 major promoters, one in each region, plus possibly 2 minor promotors in E1, the transforming region. The 5'-terminal cap structures of adenovirus 2 (Ad2) early RNA labeled in vivo and purified by DEAE-Sepharose chromatography in 7 M urea, followed by paper electrophoresis, were studied previously. Evidence was obtained for a minimum of 6 distinct caps in Ad2 early mRNA. An independent approach is now developed to characterize the caps of Ad2 early RNA and of [oral carcinoma] KB cell RNA and the validity of this approach to characterize the 5' termini of capped RNA has been established. The RNA 5'-terminal caps were labeled with 20-40% efficiency in vitro (after removal of the m7G by oxidation and .beta.-elimination) by using polynucleotide kinase and [.gamma.-32P]ATP. Ad2-specific RNA was selected by 1 or 2 cycles of hybridization with Ad2 DNA. RNA was digested with RNase T2, and -5 (cap 1: 32pNmpNp) and -6 (cap 2: 32pNmpNmpNp) charge fractions were isolated by DEAE-Sephadex chromatography in 7 M urea. Each fraction was digested with nuclease P1 and the 32pNm nucleotides identified by 2-D[dimensional]-TLC on cellulose: pAm, pm6Am, pGm, pUm, and pN*m were found in Ad2 cap 1 and cap 2 fractions (pN*m probably is an unknown uridylic acid derivative). KB RNA caps had these plus pCm. At least 1 Ad2 early mRNA has Um as its 5'-terminal penultimate nucleoside, suggesting that eucaryotic mRNAs may initiate in a pyrimidine residue. In other experiments, the -5 and -6 fractions were resolved into individual cap derivatives by a new procedure, 2-D-TLC on PEI-cellulose. We resolved 10 cap 1 and 11 cap 2 spots in Ad2 RNA; each cap spot does not necessarily represent a different 5' terminus, because cap 1 spots could be cap 2 spots lacking ribose methylation in the penultimate nucleoside and the methylation of bases (A and probably U) could be partial, which would give rise to different cap spots derived from the same 5' terminus. To resolve these possibilities, we analyzed each spot by nuclease P1 digestion and 2-D-TLC; the same 32pNm nucleotides were detected as described above. There are at least 8 different cap structures in early Ad2 mRNA. The minimum number of 5' termini in early Ad2 mRNA appears to be greater than the number of known early promoters. Analyses of KB cell RNA, showed that all

but one cap 1 and two cap 2 structures in Ad2 mRNA were common to KB cell mRNA.
Descriptors/Keywords: HUMAN ORAL CARCINOMA CELLS RNASE F-2 NUCLEASE P-1 TRANSCRIPTION
Concept Codes:
*02508 Cytology and Cytochemistry-Human
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31500 Genetics of Bacteria and Viruses
*33506 Virology-Animal Host Viruses
10010 Comparative Biochemistry, General
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10068 Biochemical Studies-Carbohydrates
10504 Biophysics-General Biophysical Techniques
10804 Enzymes-Methods
12100 Movement (1971-)
19001 Dental and Oral Biology-General; Methods
24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
24006 Neoplasms and Neoplastic Agents-Biochemistry
24007 Neoplasms and Neoplastic Agents-Carcinogens and Carcinogenesis 32000 Microbiological Apparatus, Methods and Media
32500 Tissue Culture, Apparatus, Methods and Media
33502 Virology-General; Methods
Biosystematic Codes:
02210 Adenoviridae (1979-)
86215 Hominidae
Super Taxa:
Microorganisms; Viruses; Animals; Chordates; Vertebrates; Mammals; Primates; Humans

9/5/16 (Item 12 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

3002451 BIOSIS Number: 69039858
THE CATALYTIC SITE OF AMP NUCLEOSIDASE EC-3.2.2.4 SUBSTRATE SPECIFICITY AND PH EFFECTS WITH AMP AND FORMYCIN 5' PHOSPHATE
DEWOLF W E JR; FULLIN F A; SCHRAMM V L
DEP. BIOCHEM., TEMPLE UNIV. SCH. MED., PHILADELPHIA, PA. 19140, USA. J BIOL CHEM 254 (21). 1979. 10868-10875. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
Language: ENGLISH
AMP nucleosidase from Azotobacter vinelandii catalyzes the hydrolysis of the N-glycosidic bond of AMP to give adenine and ribose 5-PO4. At optimum concentrations of the allosteric activator (MgATP2-), the Km value for AMP is 120 .mu.M. Other substrates include 2-aminoAMP, 8-azaAMP, 2'-deoxy-5'-AMP,3'-deoxy-5'-AMP and NMN. The Vmax values

for these compounds are 10% or less than the Vmax with AMP as substrate. Most nucleotides and nucleosides are essentially inactive as substrates and are relatively poor inhibitors of the enzyme. This group includes IMP, GMP, UMP, CMP, 2'-AMP, 3'-AMP, adenosine and inosine. The AMP analogs tubercidin 5'-PO4, 8-BrAMP, 8-azidoAMP, 4-aminopyrazolo(3,4-d)pyrimidine-1-ribonucleot ide and 8-spin label AMP (8-[[[(2,2,5,5-tetramethyl-1-oxy-3-pyrrolidinyl)ca rbamoyl]methyl]thio]AMP) are also essentially inactive as substrates but are good inhibitors of AMP nucleosidase. Thus, the Ki values for these compounds are lower than the Km for AMP. Formycin 5'-PO4 is a linear competitive inhibitor with respect to AMP and exhibits an inhibition constant (Ki) of 0.043 .mu.M. Thus the Km/Ki ratio for AMP and formycin 5'-PO4 is < 2500. Formycin is a linear competitive inhibitor at low concentrations (Ki = 4 .mu.M) but a noncompetitive inhibitor at higher concentrations. Plots of log Vmax for AMP and pK for formycin 5'-PO4 as a function of pH values from 6.0-9.0 are similar with 2 apparently essential ionizable groups. The pK.alpha. values are 6.20 and 8.45 for Vmax and 6.64 and 8.15 for Ki. A plot of log Vmax/Km for AMP is more complex, and suggests that four ionizable groups, 2 with a pK.alpha. of .apprx. 6.60 and 2 with a pK.alpha. of .apprx. 8.15 are involved. The properties of formycin 5'-PO4 and other AMP analogs with syn glycosyl torsion angles suggest that the glycosidic torsion angle of AMP changes from the anti toward the syn as substrate binds at the catalytic site. A catalytic mechanism of induced strain on the glycosidic bond, together with electron withdrawal from the purine ring is consistent with the results. A mechanism of N(7) protonation leading to glycosidic bond cleavage is contradicted by the similar pK.alpha. values for AMP as substrate and formycin 5'-PO4 as an inhibitor. Descriptors/Keywords: AZOTOBACTER-VINELANDII AMP METABOLIC-DRUG Concept Codes:

*10806 Enzymes-Chemical and Physical
*10808 Enzymes-Physiological Studies
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
10054 Biochemical Methods-Proteins, Peptides and Amino Acids
10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10502 Biophysics-General Biophysical Studies
10506 Biophysics-Molecular Properties and Macromolecules
10804 Enzymes-Methods
22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
32000 Microbiological Apparatus, Methods and Media
38504 Chemotherapy-Antibacterial Agents

Biosystematic Codes:

04710 Azotobacteraceae (1979-)

Super Taxa:

Microorganisms; Bacteria

9/5/17 (Item 13 from file: 5)

2993413 BIOSIS Number: 69030820

QUANTITATIVE ANALYSIS OF INTERMEDIARY METABOLISM IN TETRAHYMENA-PYRIFORMIS CELLS GROWN IN PROTEOSE PEPTONE AND RE SUSPENDED IN A DEFINED NUTRIENT-RICH MEDIUM

STEIN R B; BLUM J J
DEP. PHYSIOL., DUKE UNIV. MED. CENT., DURHAM, N.C. 27710, USA.

J BIOL CHEM 254 (20). 1979. 10385-10395. CODEN: JBCHA Full Journal Title: Journal of Biological Chemistry
Language: ENGLISH

T. pyriformis were grown to early-stationary phase and resuspended in a defined mixture containing glucose, fructose, ribose, glycerol, acetate, pyruvate, bicarbonate, glutamate and hexanoate, with only 1 substrate labeled with 14C in any flask. Incorporation of label into CO2, glycogen, RNA, alanine, glutamate, glycine, lipid glycerol and lipid fatty acids was measured 20, 40 and 60 min after the start of the incubation. Two preceding models were joined: 1 for carbohydrate-metabolizing cells and 1 for acetate-metabolizing cells, eliminating the over-simplified sections of each. Equations were written and programmed for a digital computer, to allow computation of the amount of label expected to be incorporated into any of the products measured for any given set of steady state flux values in the metabolic network. The model formed by simply joining the 2 preceding models did not yield satisfactory agreement with the complete data obtained in the present study, although each partial set of data could be well fit by the appropriate partial model. Analysis of the ways in which the model failed to yield good fits to the data indicated that another pool of P-enolpyruvate, of pyruvate, and of acetyl-CoA had to be added at the junction of the 2 models. The presence of such pools was also implied by the ratios of label incorporation from acetate and pyruvate into fatty acids as compared to the incorporation of label from glucose into fatty acids. A new model was constructed which differed from the preceding model only in its structural organization at the level of P-enolpyruvate, pyruvate and acetyl-CoA. The model is consistent with all known information on the compartmental structure of metabolism in Tetrahymena, on enzyme localization and on the enzyme complement of this cell. Over 70 measurements of label incorporation into products were made at each time. These, plus a large number of limit measurements which constrain any possible solutions, were in sufficient excess of the 39 independent flux values to permit a stringent assessment of the model. A set of flux values was found which yielded a good fit to the data. These flux values provide a quantitative description of metabolite flux in the intact cell during the slow adaptation to the 9-substrate mixture. The rates of utilization of glucose, fructose, glycerol, and ribose were in the ratio of .apprx. 10:1:0.33:0.16, i.e., fairly similar to the ratio observed with carbohydrate-metabolizing cells. Initial flux

through phosphofructokinase is .apprx. 160 nmol/106 cells.cntdot.h, increasing over 3-fold during the hour incubation. Initial flux through fructose-1,6-diphosphatase is about 110 nmol/106 cells.cntdot.h and also increases almost 3-fold during the incubation. Net flux is glycolytic and increase 4-fold during the hour with a large amount of futile cycling at this step. As in carbohydrate-metabolizing cells, net flux through the pentose cycle is very small and in the direction of glycolysis, but the pattern of bidirectional flux is different, both transketolase reactions being much larger. To a 1st approximation, flow through the glycolytic pathway is comparable to the absence of acetate, while flow through the glyoxylate bypass is comparable to the absence of the carbohydrate components of the substrate mixture. The flux of potentially glyconeogenic P-enolpyruvate from the glyoxylate cycle meets the flux of glycolytically produced P-enolpyruvate at the level of pyruvate kinase, leading to significant futile cycling. An analysis of futile cycling at the P-enolpyruvate/pyruvate/oxaloacetate cross-roads in cells with a glyoxylate bypass is presented. Only 3 labeled amino acids are released into the medium by Tetrahymena during incubation with the 9-substrate mixture: glutamate, alanine and glycine. Incorporation of label into glycine was not originally allowed for in the model, and those measurements were not used in obtaining the fits to the data. After fits were obtained, it was found that the glycine released derives from the peroxisomal pool of glyoxylate, as suggested by the peroxisomal localization of glyoxylate aminotransferase in other cells, led to a good fit to the glycine incorporation data. An energy balance for all the ATP-producing and -consuming reactions of the model shows that net ATP production increased by over 20% during the hour incubation. The cost of glycogen synthesis exceeds the amount of ATP made available by glycolysis; the ATP required comprises .apprx. 20% of the net ATP made available by the mitochondrial and peroxisomal reactions.

Descriptors/Keywords: GLUCOSE FRUCTOSE RIBOSE GLYCEROL ACETATE PYRUVATE BI CARBONATE GLUTAMATE HEXANOATE CARBON DI OXIDE GLYCOGEN RNA ALANINE GLYCINE LIPID GLYCEROL FATTY-ACIDS CARBON-14 SUBSTRATE LABEL FLUX VALUES Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*13002 Metabolism-General Metabolism; Metabolic Pathways
*13004 Metabolism-Carbohydrates
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*64002 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Protozoa
00530 General Biology-Information, Documentation, Retrieval and Computer Applications
04500 Mathematical Biology and Statistical Methods
06504 Radiation-Radiation and Isotope Techniques
07517 Ecology; Environmental Biology-Water Research and Fishery Biology (1969-1984)
10012 Biochemistry-Gases (1970-)
10060 Biochemical Studies-General

10066 Biochemical Studies-Lipids
10068 Biochemical Studies-Carbohydrates
10802 Enzymes-General and Comparative Studies; Coenzymes
12100 Movement (1971-)
13003 Metabolism-Energy and Respiratory Metabolism
13220 Nutrition-Carbohydrates (1972-)
13222 Nutrition-Lipids (1972-)
13224 Nutrition-Proteins, Peptides and Amino Acids (1972-)
25508 Developmental Biology-Embryology-Morphogenesis, General
32500 Tissue Culture, Apparatus, Methods and Media
Biosystematic Codes:
35100 Ciliata
Super Taxa:
Microorganisms; Animals; Invertebrates; Protozoans

9/5/18 (Item 14 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2788987 BIOSIS Number: 68043894
PARTIAL BASE METHYLATION AND OTHER STRUCTURAL DIFFERENCES IN THE 17S RIBOSOMAL RNA OF SYCAMORE CELLS DURING GROWTH IN CELL CULTURE MIASSOD R; CECCHINI J-P
UNITE ENSEIGN. RECH. LUMINY, LAB. BIOCHIM. VEG. ASSOC. CNRS, UNIV. AIX-MARSEILLE II, 13288 MARSEILLE CEDEX 2, FR.
BIOCHIM BIOPHYS ACTA 562 (2). 1979. 292-301. CODEN: BBACA
Full Journal Title: Biochimica et Biophysica Acta
Language: ENGLISH
Sycamore (Acer pseudoplatanus L.) cytoplasmic rRNA was investigated in rapidly dividing cells, cells starting mitosis after the lag phase of growth (4 days) induced by deconditioning of the culture medium and in growth-arrested cells from 10 day old cultures deprived of exogenous auxin (i.e., exponential, early exponential and 2,4-D-deprived cultures). rRNA was extracted and purified from mixed 14C-labeled exponential cultures and 3H-labeled early exponential cultures. A 14C-labeled exponential culture and a 3H-labeled 2,4-D-deprived culture were analyzed in the same way. The 17 S rRNA molecules from both early exponential and 2,4-D-deprived cultures displayed a lower electrophoretic mobility on polyacrylamide gels than those from exponential cultures. Alkaline and acid hydrolysates of purified 17 S rRNA labeled on the phosphate groups or the methyl groups were analyzed on ion-exchange resins. There was no change in the extent of ribose methylation of the molecule from the three different cultures. The base methylation of the 17 S rRNA was decreased in early exponential cultures and in 2,4-D-deprived cultures. Part of the molecules synthesized in early exponential cultures specifically lacked 7-methylguanine, N6-methyladenine and N6 ,N6-dimethyladenine. The possible significance of these changes in the 17 S rRNA were discussed.
Descriptors/Keywords: ACER-PSEUDOPLATANUS 2 4-D
Concept Codes:

*02504 Cytology and Cytochemistry-Plant
*03504 Genetics and Cytogenetics-Plant
*10506 Biophysics-Molecular Properties and Macromolecules
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*51510 Plant Physiology, Biochemistry and Biophysics-Growth, Differentiation
*51519 Plant Physiology, Biochemistry and Biophysics-Metabolism 06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10300 Replication, Transcription, Translation
10504 Biophysics-General Biophysical Techniques
12100 Movement (1971-)
32500 Tissue Culture, Apparatus, Methods and Media
51514 Plant Physiology, Biochemistry and Biophysics-Growth Substances Biosystematic Codes:
25510 Aceraceae
Super Taxa:
Plants; Vascular Plants; Spermatophytes; Angiosperms; Dicots

9/5/19 (Item 15 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2689445 BIOSIS Number: 67026848
NMR INVESTIGATION OF THE INTERACTION OF A CARBON-13 LABELED QUINACRINE DERIVATIVE WITH DNA
DAVIDSON M W; GRIGGS B G; LOPP I G; BOYKIN D W; WILSON W D
DEP. CHEM., GA. STATE UNIV., ATLANTA, GA. 30303, USA.
BIOCHEMISTRY 17 (20). 1978 4220-4225. CODEN: BICHA
Full Journal Title: Biochemistry
Language: ENGLISH
A quinacrine derivative with [13C]methyl groups on the aliphatic (side chain) and aromatic (acridine) N was prepared from quinacrine using [13C]methyl iodide. As expected, the 13C NMR spectrum of this compound had 2 major signals corresponding to the 2 labeled methyl groups. On adding this compound to sonicated calf thymus DNA at molar ratios of 1:4 (drug to DNA nucleotides) and less (intercalation binding), both methyl signals were dramatically reduced in intensity at low ionic strength. As the ionic strength was increased, the side chain methyl signal became significantly more intense and approached the free solution line width at ionic strength greater than 1.0. The ring and side chain methyl signals were also reduced in intensity at low ionic strength with glucosylated T4D bacteriophage DNA as with calf thymus DNA. These results can be interpreted in terms of a model that involves intercalation and immobilization of the quinacrine aromatic ring even at high ionic strength. The side chain is tightly bound at low ionic strength (presumably through interaction with the DNA phosphate groups) but has a considerably shorter group correlation time at high ionic strength suggesting that the side

chain has considerable freedom of movement even though the molecule remains bound to DNA through the acridine ring. A single intercalated molecule may have a bimodal interaction with DNA. The acridine ring and side chain groups have different binding constants for DNA and this difference in binding for a single molecule can be accentuated by increased salt concentrations. At molar ratios of 1:1 the intercalation sites are saturated but at low ionic strengths the acridine methyl group signal remains at low intensity relative to the unbound compound. The side chain methyl signal has appreciable intensity in this complex. As the ionic strength is increased, the side chain and aromatic methyl signals increase in intensity suggesting dissociation of the complex. These data are consistent with a binding model involving stacking and immobilization of the acridine ring in a self-association type complex induced by the negatively charged DNA phosphate-deoxyribose backbone. The side chain in this 1:1 complex must possess a considerable degree of rotational freedom to account for its relative short correlation time. Addition of Na or Mg ions disrupts this complex due to competition with DNA phosphate binding sites.
Descriptors/Keywords: BACTERIO PHAGE CALF THYMUS
Concept Codes:
*10060 Biochemical Studies-General
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10502 Biophysics-General Biophysical Studies
*10506 Biophysics-Molecular Properties and Macromolecules
*13002 Metabolism-General Metabolism; Metabolic Pathways
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
*24008 Neoplasms and Neoplastic Agents-Therapeutic Agents; Therapy *38502 Chemotherapy-General; Methods; Metabolism
06504 Radiation-Radiation and Isotope Techniques
10010 Comparative Biochemistry, General
10050 Biochemical Methods-General
10069 Biochemical Studies-Minerals
10504 Biophysics-General Biophysical Techniques
10608 External Effects-Sonics; Ultrasonics
12100 Movement (1971-)
17016 Endocrine System-Thymus
25000 Pediatrics
33504 Virology-Bacteriophage
Biosystematic Codes:
02100 Bacterial Viruses (1979-80)
85715 Bovidae
Super Taxa:
Microorganisms; Viruses; Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Artiodactyls

9/5/20 (Item 16 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2500044 BIOSIS Number: 66046949

STAPHYLOCOCCAL NUCLEASE DIGESTION OF RELATIVELY STABLE RNA IN THE CHROMATIN AND NUCLEAR RIBO NUCLEO PROTEIN FRACTIONS OF HUMAN CARCINOMA CELLS

AUGENLICHT L H

MEML. SLOAN-KETTERING CANCER CENT., 1275 YORK AVE., NEW YORK, N.Y. 10021, USA.

J BIOL CHEM 253 (9). 1978 3035-3041. CODEN: JBCHA

Full Journal Title: Journal of Biological Chemistry

Language: ENGLISH

The organization of relatively stable nuclear RNA in the chromatin and nuclear ribonucleoprotein (RNP) fractions isolated from a human HT-29 colonic carcinoma cell line differed from that of rapidly turning over RNA. In both fractions, RNA labeled over 24 h was of a similar size as 1 h pulse-labeled RNA, but was digested more slowly and less extensively, although in all cases, the oligonucleotides protected from digestion were approximately 26 nucleotides in length. In the RNP fraction, RNA labeled over 24 h was in structures having a slightly higher bouyant density in CsCl than structures containing 1 h pulse-labeled RNA. A more stable class of discrete low molecular weight (lmw, 22,000-76,000) RNA species was also identified in the chromatin and RNP fractions. These species incorporated very little radioactivity over 1 or 24 h (or even 4 days). They cannot account for the differences in digestion between 1- and 24 h labeled RNA and represent a separate class. They (as well as heterogenous nuclear RNA (hnRNA)) could be labeled by incorporation of [3H]methyl from methyl methionine into the base and 2'-O-ribose positions and into the cap structure. In the chromatin fraction, 90-100% of the methyl incorporated into RNA was protected from staphylococcal nuclease digestion, although the lmw RNA species were extensively nicked by the enzyme and the higher molecular weight methylated hnRNA was digested to smaller oligonucleotides. In the RNP fraction, only 40-60% of the methylated nucleotides were protected, and all of this was in small oligonucleotides, except for 1 lmw species at 37.degree. K. The protected RNA from both fractions contained all 3 methyl-labeled structures identified in intact RNA.

Descriptors/Keywords: HT-29 COLONIC CARCINOMA CELLS

Concept Codes:

*02508 Cytology and Cytochemistry-Human

*03508 Genetics and Cytogenetics-Human

*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10506 Biophysics-Molecular Properties and Macromolecules *13012 Metabolism-Proteins, Peptides and Amino Acids

*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines

*14006 Digestive System-Pathology

*24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines

*24006 Neoplasms and Neoplastic Agents-Biochemistry

06504 Radiation-Radiation and Isotope Techniques

10010 Comparative Biochemistry, General

10052 Biochemical Methods-Nucleic Acids, Purines and

Pyrimidines 10054 Biochemical Methods-Proteins, Peptides and Amino Acids 10066 Biochemical Studies-Lipids
10069 Biochemical Studies-Minerals
10300 Replication, Transcription, Translation
10804 Enzymes-Methods
31000 Physiology and Biochemistry of Bacteria
32500 Tissue Culture, Apparatus, Methods and Media
Biosystematic Codes:
07200 Eubacteriales (1969-78)
86215 Hominidae
Super Taxa:
Microorganisms; Bacteria; Animals; Chordates; Vertebrates; Mammals; Primates; Humans

9/5/21 (Item 17 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2474024 BIOSIS Number: 66020929
INCORPORATION OF CARBON-14 LABELED COMPOUNDS INTO SINEFUNGIN A-9145 A NUCLEOSIDE ANTI FUNGAL ANTIBIOTIC
BERRY D R; ABBOTT B J
LILLY RES. LAB., ELI LILLY CO., INDIANAPOLIS, INDIANA 46206, USA. J ANTIBIOT (TOKYO) 31 (3). 1978 185-191. CODEN: JANTA
Full Journal Title: Journal of Antibiotics (Tokyo)
Language: ENGLISH
Streptomyces griseolus produces a complex of antifungal nucleoside antibiotics that contain an ornithine residue linked to the ribose moiety of adenosine. 14C-Labeled compounds were added to cultures of S. griseolus (.apprxeq. 0.5 .mu.Ci/ml culture broth) and the amount of label incorporated into the 2 major antifungal components (sinefungin and factor C) was measured. Substantial incorporation (16 .apprx. 52%) was obtained with adenosine [8-14C], ATP [14C(u)], adenine [8-14C], L-ornithine [14C(u)] and DL-citrulline [5-14C]. Glycine, glucose, L-arginine and acetate were incorporated to the extent of 1.7 .apprx. 4.7%. Studies were conducted on the fermentation time course and on the time dependence of label incorporation to optimize the incorporation of labeled adenine into sinefungin. Adenine [8-14C] incorporation and sinefungin specific activity were highest 48 h after label addition and both declined during subsequent incubation. As much as 43% of the labeled adenine was incorporated into the antibiotic and sinefungin was produced with a specific activity of 24.8 .mu.Ci/mg. The labeling experiments suggest that a preformed adenine derivative (e.g., an adenine nucleotide), and ornithine (or a closely related metabolite) are direct biosynthetic precursors of sinefungin.
Descriptors/Keywords: STREPTOMYCES-GRISEOLUS ADENINE ORNITHINE
Concept Codes:
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*22003 Pharmacology-Drug Metabolism; Metabolic Stimulators

*31000 Physiology and Biochemistry of Bacteria
*38502 Chemotherapy-General; Methods; Metabolism
*39004 Food and Industrial Microbiology-Antibiotics, Biologics, Other Agents
06504 Radiation-Radiation and Isotope Techniques
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 32000 Microbiological Apparatus, Methods and Media
Biosystematic Codes:
06200 Actinomycetales (1969-78)
Super Taxa:
Microorganisms; Bacteria

9/5/22 (Item 18 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2458171 BIOSIS Number: 66005076
THE GROWTH OF TRITIATED THYMIDINE LABELED LACTOBACILLUS-CASEI IMMOBILIZED IN POLY ACRYLAMIDE GEL LATTICE
DIVIES C
MICROBIOL. BIOL. APPL., I.U.T. LE MONTET, 54600 VILLERS-LES-NANCY, FR. ANN MICROBIOL (PARIS) 128B (3). 1977 (RECD 1978) 349-358. CODEN: ANMBC Full Journal Title: Annales de Microbiologie (Paris)
Language: FRENCH
When 3H6-thymidine labeled bacteria (1.2 disintegration/cell per day) are immobilized in a polyacrylamide gel lattice, the decimal reduction time for their malic acid decarboxylase activity is extended to 38 days. Thus, the growth of bacteria in the gel lattice is very poor. The DNA turnover rate during the exponential growth phase for the free cells and the DNA specific activity of the population of immobilized cells were examined. The viability of bacteria isolated from the gel lattice decreases with time, as does their thermal stability for malic acid decarboxylase activity. This activity is partially restored after 65 days. With respect to the protein, deoxyribose and ribose constituents, the protein/deoxyribose, protein/ribose and deoxyribose/ribose ratios fluctuats considerably with time. These fluctuations are more marked than those observed for the free cells during their different growth phases.
Descriptors/Keywords: DNA MALIC-ACID DECARBOXYLASE CARBOHYDRATES
Concept Codes:
*10054 Biochemical Methods-Proteins, Peptides and Amino Acids
*10511 Biophysics-Bioengineering
*10804 Enzymes-Methods
*10806 Enzymes-Chemical and Physical
*10808 Enzymes-Physiological Studies
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
*32000 Microbiological Apparatus, Methods and Media

06504 Radiation-Radiation and Isotope Techniques
10010 Comparative Biochemistry, General
10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 10068 Biochemical Studies-Carbohydrates
10506 Biophysics-Molecular Properties and Macromolecules
10614 External Effects-Temperature as a Primary Variable (1971-) 10802 Enzymes-General and Comparative Studies; Coenzymes
23001 Temperature: Its Measurement, Effects and Regulation-General Measurement and Methods
Biosystematic Codes:
07200 Eubacteriales (1969-78)
Super Taxa:
Microorganisms; Bacteria

9/5/23 (Item 19 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2240722 BIOSIS Number: 64067642
ADP RIBOSYLATION OF ISOLATED NUCLEI FROM HELA CELLS RAT LIVER FETAL RAT LIVER AND NOVIKOFF HEPATOMA EFFECT OF NAD ANALOGS ON TEMPLATE ACTIVITY FOR DNA SYNTHESIS INCORPORATION INTO NUCLEAR PROTEINS AND A NEW 1 DOUBLE-PRIME TO 3-PRIME OSIDIC LINKAGE
SUHADOLNIK R J; BAUR R; LICHTENWALNER D M; UEMATSU T; ROBERTS J H; SUDHAKAR S; SMULSON M
J BIOL CHEM 252 (12). 1977 4134-4144. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
With isolated nuclei from HeLa cells [human cervical cancer], 3H-labeled 2'-dNAD+, 3'dNAD+, and NTuD+ [adenosine replaced by tubercidin] form alkali-labile covalent bonds with nuclear proteins. The average chain lengths of the poly(ADP-ribose) formed from NAD+-, 2'-dNAD+-, 3'dNAD+-, and NTuD+-labeled analogs were 5, 1.3, 1.4 and 1.7, respectively. Release of template restriction as measured by the increased [3H]dTTP incorporation into DNA was essentially the same with NAD+, 3'dNAD+, and NTuD+, but 2'dNAD+ showed a 13% inhibition with exogenously supplied Escherichia coli DNA polymerase I and a 55% inhibition by endogenous DNA polymerase. 2'dNAD+ and 3'dNAD+ exert unique biological changes with isolated rat liver nuclei. At 0.5 mM NAD+ (average polymer chain length of 9.4), [3H]dTTP incorporation into DNA is inhibited only 9%, but at 0.5 mM, with 2'dNAD+ and 3'dNAD+ (average chain lenghts of 1.5 or 1.1 and 1.2, respectively) inhibition of incorporation of [3H]dTTP 90%. Removal of the 2'-hydroxyl group of the adenine ribose of NAD+ shows alkali-labile covalent binding of 2'-ADP ribose to nuclear proteins that is 3 times greater than observed with NAD+, the formation of a dimer, a new ribose to ribose 1" .fwdarw. 3' osidic linkage and an NAD+ analog that is 10 times more effective as an inhibitor of DNA synthesis. .3'dNAD+ produced similar effects. When the adenosine of NAD+ is replaced with

the pyrrolopyrimidine nucleoside, tubercidin (NTuD+), 1,N-ethenoadenosine (.epsilon.NAD+), guanosine (NGD+), or inosine (NID+), there is no inhibitory effect on [3H]dTTP incorporation into DNA. The pyrazolopyrimidine nucleoside, formycin (NFD+), inhibits DNA polymerase I the same as NAD+ with rat liver nuclei. In the study of DNA inhibition with isolated rat liver nuclei and NAD+, the decrease in the percent incorporation of 3H into DNA is the same with either [3H]dATP or [3H]dTTP. NAD+ may be ineffective as a regulatory control in nuclei from fetal rat liver and Novikoff hepatoma [rat ascites tumor], but the inhibition of [3H]dTTP incorporation by using 2'dNAD+ and 3'dNAD+. .epsilon.NAD+ and NID+, like NAD+, do not exert a regulatory control.
Descriptors/Keywords: ESCHERICHIA-COLI HUMAN CERVICAL CANCER CELLS RAT ASCITES TUMOR CELLS FORMYCIN TUBERCIDIN METAB-DRUGS DNA POLYMERASE I NICOTINAMIDE TUBERCIDIN DI NUCLEOTIDE 1 N-6 ETHENO ADENOSINE NICOTINAMIDE INOSINE DI NUCLEOTIDE NICOTINAMIDE GUANOSINE DI NUCLEOTIDE Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*02508 Cytology and Cytochemistry-Human
*10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*10802 Enzymes-General and Comparative Studies; Coenzymes
*10808 Enzymes-Physiological Studies
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
*24006 Neoplasms and Neoplastic Agents-Biochemistry
06504 Radiation-Radiation and Isotope Techniques
10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
11314 Chordate Body Regions-Abdomen (1970-)
14004 Digestive System-Physiology and Biochemistry
14006 Digestive System-Pathology
15010 Blood, Blood-Forming Organs and Body Fluids-Other Body Fluids 16506 Reproductive System-Pathology
24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
24008 Neoplasms and Neoplastic Agents-Therapeutic Agents; Therapy 25504 Developmental Biology-Embryology-Experimental
31000 Physiology and Biochemistry of Bacteria
32600 In Vitro Studies, Cellular and Subcellular
36002 Medical and Clinical Microbiology-Bacteriology
38502 Chemotherapy-General; Methods; Metabolism
Biosystematic Codes:
07200 Eubacteriales (1969-78)
86215 Hominidae
86375 Muridae
Super Taxa:
Microorganisms; Bacteria; Animals; Chordates; Vertebrates; Mammals; Primates; Humans; Nonhuman Vertebrates; Nonhuman Mammals; Rodents

9/5/24 (Item 20 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2174242 BIOSIS Number: 64001162
ADP RIBOSYLATED HISTONES
ORD M G; STOCKEN L A
BIOCHEM J 161 (3). 1977 583-592. CODEN: BIJOA
Full Journal Title: Biochemical Journal
When rat liver nuclei were incubated with [adenine-3H]NAD, besides histone 1, histone 2A and especially histone 2B accepted 3H radioactivity. Radioactivity was also found on the non-histone proteins and on the small amounts of histones 1 and 3 released into the supernatant during incubation. [14C]Adenine uptake in vivo by liver and thymus nuclei showed radioactivity in histones 1 and 3. After digestion with Pronase and leucine aminopeptidase 14C- or 32P-labeled histone 3 released a serine phosphate-containing nucleotide, which on acid hydrolysis yielded ADP-ribose and serine phosphate. Serine phosphate was also found in the material from the nucleotide peaks from histones 2A and 2B. ADP-ribosylated histones 1 and 3 were more easily released from nuclei than their unmodified forms and showed higher [32P]Pi and [3H]lysine uptakes in vivo. Descriptors/Keywords: RAT LIVER THYMUS NUCLEI NONHISTONE PROTEINS Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*13012 Metabolism-Proteins, Peptides and Amino Acids
06504 Radiation-Radiation and Isotope Techniques
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10064 Biochemical Studies-Proteins, Peptides and Amino Acids 14004 Digestive System-Physiology and Biochemistry
15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
17016 Endocrine System-Thymus
32600 In Vitro Studies, Cellular and Subcellular
Biosystematic Codes:
86375 Muridae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Rodents

9/5/25 (Item 21 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2161134 BIOSIS Number: 63065554
A STABLE RADICAL IN THE RIBOSE MOIETY OF X IRRADIATED 3 CYTIDYLIC-ACID AND ITS RELATION TO A SIMILAR RADICAL IN CYTIDINE AN ESR ELECTRON NUCLEAR DOUBLE RESONANCE STUDY
BERNHARD W A; HUETTERMANN J; MUELLER A
RADIAT RES 68 (3). 1976 390-413. CODEN: RAREA
Full Journal Title: Radiation Research

A stable free radical, labeled 3.alpha.H, is formed in 3'-cytidylic acid (3'CMP) single crystals in X-irradiating at 77.degree. K and then warming to above room temperature. It remains stable up to 150.degree. C. ESR and ENDOR [electron nuclear double resonance] measurements explicitly indicate a structure of the form H2.ovrhdot.C-CX.dbd.CHY. The same free radical structure is assigned to a radical in cytidine (whose spectral parameters were analyzed by Hampton and Alexander). The chemical structures of groups X and Y are tentatively assigned for the 3.alpha.H radical in both 3'CMP and cytidine. Measurements on the formation of the 3.alpha.H radical in 3'CMP indicate that the precursor radical is due to hydrogen abstraction at C5'. The activation energy of the conversion is about 30 kcal/mol. A mechanism is postulated for the formation of the 3.alpha.H radical in both 3'CMP and cytidine. It accounts for the decay of the 3.alpha.H radical in cytidine and the presence of yet another hitherto unassigned radical product observed by Allison and Alexander. The postulated mechanism provides a reaction scheme for arriving at various end products identified in aqueous radiolysis studies of DNA and its components.
Descriptors/Keywords: ACTIVATION ENERGY CHEMICAL STRUCTURE DNA RADIOLYSIS REACTION SCHEME SPECTRAL PARAMETER
Concept Codes:
*06506 Radiation-Radiation Effects and Protective Measures *10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10502 Biophysics-General Biophysical Studies *10506 Biophysics-Molecular Properties and Macromolecules *10618 External Effects-Temperature as a Primary Variable-Hot (1971-) 06504 Radiation-Radiation and Isotope Techniques 10012 Biochemistry-Gases (1970-) 10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10068 Biochemical Studies-Carbohydrates 10504 Biophysics-General Biophysical Techniques 23001 Temperature: Its Measurement, Effects and Regulation-General Measurement and Methods

9/5/26 (Item 22 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2149811 BIOSIS Number: 63054231
RADIOAUTOGRAPHIC OBSERVATIONS OF A 19 MONTH OLD ILEAL CONDUIT
DESCHNER E E; GOLDSTEIN M J; MELAMED M R; SHERLOCK P
GASTROENTEROLOGY 71 (5). 1976 832-834. CODEN: GASTA
Full Journal Title: Gastroenterology
The influence of an altered environment on the cellular kinetics and histological appearance of ileal mucosa used as a urinary bladder was investigated in a patient with a conduit of 1 yr and 7 mo. duration. After injection of 10 mCi of 3H-Tdr [thymine deoxyribose], multiple biopsies were taken spanning a 3 day period. No increase in inflammatory cell numbers was seen and villous atrophy was minimal. A generation time or

total cell cycle time of 36 h was observed, with a G1 phase of 22 h and an S phase of 11 h. At 1 h 2.4 3H-Tdr-labeled cells per crypt column and a mitotic index of 1.4% were obtained. The complete labeled mitosis curve obtained on the epithelial cells of the 19 mo. old ileal conduit mucosa demonstrated a retention of the kinetics and histological characteristics of normal ileal mucosa, contrary to previously documented findings.
Descriptors/Keywords: HUMAN ALTERED CELLULAR ENVIRONMENT HISTOLOGY KINETICS TRITIATED THYMINE DEOXY RIBOSE
Concept Codes:
*02508 Cytology and Cytochemistry-Human
*06504 Radiation-Radiation and Isotope Techniques
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*14001 Digestive System-General; Methods
*15506 Urinary System and External Secretions-Pathology
01012 Methods, Materials and Apparatus, General-Photography
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 10068 Biochemical Studies-Carbohydrates
11105 Anatomy and Histology, General and Comparative-Surgery
11106 Anatomy and Histology, General and Comparative-Radiologic Anatomy
11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
12508 Pathology, General and Miscellaneous-Inflammation and Inflammatory Disease
12510 Pathology, General and Miscellaneous-Necrosis (1971-)
14004 Digestive System-Physiology and Biochemistry
15501 Urinary System and External Secretions-General; Methods Biosystematic Codes:
86215 Hominidae
Super Taxa:
Animals; Chordates; Vertebrates; Mammals; Primates; Humans

9/5/27 (Item 23 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2127918 BIOSIS Number: 63032338
LOCALIZATION OF THE GTP BINDING SITE IN THE RIBOSOME ELONGATION FACTOR G GTP COMPLEX
GIRSHOVICH A S; POZDNYAKOV V A; OVCHINNIKOV Y A
EUR J BIOCHEM 69 (2). 1976 321-328. CODEN: EJBCA
Full Journal Title: European Journal of Biochemistry
For localization of the GTP-binding center in the Escherichia coli MRE-600 ribosome.cntdot.elongation-factor G.cntdot.GTP system, a method of photo-affinity labeling is used with 2 types of radioactive analogs of GTP with a photo-activated group attached to ribose or to .gamma.-phosphate residues of a nucleotide molecule: (2-nitro,4-azidobenzoyl)hydrazone of periodate-oxidized GTP or guanosine 5'-(.alpha.,.beta.-methylene)triphospha te and the .gamma.-(4-azidobenzyl)amide of GTP. These photo-analogs form a specific ternary complex with the ribosome and elongation factor G (EF-G). Separately neither the ribosome nor the EF-G bind

analogs. The formation of the ternary complex with analogs is inhibited by an excess amount of the native nucleotide. The ribose analog of GTP is hydrolyzed by the EF-G-dependent GTPase, but the .gamma.-amide of GTP is not. Irradiation of complexes containing photo-analogs leads to a highly specific labeling of EF-G, while ribosome labeling is insignificant and non-specific. The presence of an excess amount of the native nucleotide inhibits photo-labeling of EF-G without significant changes in the labeling of ribosomes. The labeling of free EF-G is low. Within the ternary complex, the GTP-binding center is localized on the EF-G. Fusidic acid does not influence the binding of GTP .gamma.-amide in a ternary complex, but blocks the specific labeling of the EF-G with no effect on the non-specific labeling of ribosomes. A hypothesis is proposed on the direct contact of this antibiotic with a GTP molecule in the GTP-binding center of EF-G.
Descriptors/Keywords: ESCHERICHIA-COLI FUSIDIC-ACID METAB-DRUG RIBOSE ALPHA PHOSPHATE GTPASE
Concept Codes:
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10064 Biochemical Studies-Proteins, Peptides and Amino Acids *10300 Replication, Transcription, Translation
*10506 Biophysics-Molecular Properties and Macromolecules
*13012 Metabolism-Proteins, Peptides and Amino Acids
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*30500 Morphology and Cytology of Bacteria
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
06504 Radiation-Radiation and Isotope Techniques
06506 Radiation-Radiation Effects and Protective Measures
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines 10054 Biochemical Methods-Proteins, Peptides and Amino Acids 10060 Biochemical Studies-General
10067 Biochemical Studies-Sterols and Steroids
10068 Biochemical Studies-Carbohydrates
10804 Enzymes-Methods
13008 Metabolism-Sterols and Steroids
22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
32000 Microbiological Apparatus, Methods and Media
38502 Chemotherapy-General; Methods; Metabolism
Biosystematic Codes:
07200 Eubacteriales (1969-78)
Super Taxa:
Microorganisms; Bacteria

9/5/28 (Item 24 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

2126034 BIOSIS Number: 63030454
SEQUENCE ANALYSIS OF SMALL AMOUNTS OF NONRADIOACTIVE OLIGO RIBO NUCLEOTIDES CONTAINING RIBOSE METHYLATED NUCLEOSIDES BY A COMBINATION OF TRITIUM AND PHOSPHORUS-32 LABELING TECHNIQUES

GUPTA R C; RANDERATH K; RANDERATH E
ANAL BIOCHEM 76 (1). 1976 269-280. CODEN: ANBCA
Full Journal Title: Analytical Biochemistry
The oligonucleotides A-G-A-Cm-U and Gm-A-A-Y-A-.psi. were used as model compounds to demonstrate how the complete nucleotide sequence of small amounts of nonradioactive oligoribonucleotides (0.2-0.3 nmol) can be derived by a combination of 3H-labeling procedures previously published and a new method for the characterization 2'-O-methylated nucleosides based on enzymatic 32P labeling. The newly developed method for the identification of ribose-methylated nucleosides entails 32P labeling by [.gamma.-32P]ATP/polynucleotide kinase of the 5'-terminus of a RNase T2-stable 2'-O-methylated dinucleotide derived from the polyribonucleotide, conversion of the labeled dinucleotide to the 32P-labeled 2'-O-methylated nucleoside 5'-monophosphate and identification of the monophosphate by its chromatographic properties on a polyethyleneimine-cellulose thin layer. The novel method is simple, fast and sensitive and at present represents the only way by which ribose-methylated nucleosides can be analyzed in small amounts (0.01 nmol) of nonradioactive oligonucleotides or RNA. Descriptors/Keywords: POLY NUCLEOTIDE KINASE LABELING THIN LAYER CHROMATOGRAPHY
Concept Codes:
*06504 Radiation-Radiation and Isotope Techniques
*10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines *10504 Biophysics-General Biophysical Techniques
*10804 Enzymes-Methods
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines 12100 Movement (1971-)

9/5/29 (Item 25 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

1955606 BIOSIS Number: 62045166
BIOSYNTHESIS OF RIBOFLAVINE STRUCTURE OF THE PURINE PRECURSOR AND ORIGIN OF THE RIBITYL SIDE CHAIN
MAILAENDER B; BACHER A
J BIOL CHEM 251 (12). 1976 3623-3628. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
The incorporation of 14C-labeled guanosine into riboflavin was studied under conditions precluding the metabolic conversion of guanosine compounds to free guanine. For this purpose a mutant BM 2 of Salmonella typhimurium deficient in the enzymes IMP dehydrogenase, purine nucleoside phosphorylase and purine nucleotide pyrophosphorylase was isolated. The mutant incorporated [ribose-14C]guanosine into riboflavin and GMP without dilution. The isolated compounds were exclusively labeled in the ribityl and ribosyl side chain, respectively. AMP and CMP were not labeled. [2-14C]Guanosine was incorporated into fiboflavin and GMP without dilution. The isolated compounds were exclusively labeled in the

isoalloxazine and guanine moiety, respectively. AMP and CMP were again unlabeled. The ribose moiety of proffered guanosine is apparently directly converted to the ribityl moiety of riboflavin. The biosynthesis of the vitamin begins at the level of a guanosine compound. Guanine, ribose, ribitol and the respective phosphates are not direct precursors of the vitamin.
Descriptors/Keywords: SALMONELLA-TYPHIMURIUM MUTANT CARBON-14 IMP DEHYDROGENASE PURINE NUCLEOSIDE PHOSPHORYLASE
Concept Codes:
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10063 Biochemical Studies-Vitamins
*10068 Biochemical Studies-Carbohydrates
*10506 Biophysics-Molecular Properties and Macromolecules
*10802 Enzymes-General and Comparative Studies; Coenzymes
*10808 Enzymes-Physiological Studies
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*13018 Metabolism-Water-Soluble Vitamins
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
06504 Radiation-Radiation and Isotope Techniques
10010 Comparative Biochemistry, General
10050 Biochemical Methods-General
10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10804 Enzymes-Methods
13004 Metabolism-Carbohydrates
22003 Pharmacology-Drug Metabolism; Metabolic Stimulators
32000 Microbiological Apparatus, Methods and Media
39004 Food and Industrial Microbiology-Antibiotics, Biologics, Other Agents
Biosystematic Codes:
07200 Eubacteriales (1969-78)
Super Taxa:
Microorganisms; Bacteria

9/5/30 (Item 26 from file: 5)
DIALOG(R)File 5:BIOSIS PREVIEWS(R)

1416730 BIOSIS Number: 58016320
CITRATE MAGNESIUM ION TRANSPORT IN BACILLUS-SUBTILIS STUDIES WITH 2 FLUORO-L ERYTHRO CITRATE AS A SUBSTRATE
OEHR P; WILLECKE K
J BIOL CHEM 249 (7). 1974 2037-2042. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
Descriptors/Keywords: MUTANTS ACONITASE EC-4.2.1.3 CARBON-14 LABEL RIBOSE MINIMAL MEDIUM METABOLISM
Concept Codes:
*10508 Biophysics-Membrane Phenomena
*10806 Enzymes-Chemical and Physical
*13002 Metabolism-General Metabolism; Metabolic Pathways
*13010 Metabolism-Minerals
*31000 Physiology and Biochemistry of Bacteria

*31500 Genetics of Bacteria and Viruses
06504 Radiation-Radiation and Isotope Techniques
10010 Comparative Biochemistry, General
10060 Biochemical Studies-General
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10068 Biochemical Studies-Carbohydrates
10069 Biochemical Studies-Minerals
12100 Movement (1971-)
13220 Nutrition-Carbohydrates (1972-)
30500 Morphology and Cytology of Bacteria
32000 Microbiological Apparatus, Methods and Media
Biosystematic Codes:
07200 Eubacteriales (1969-78)
Super Taxa:
Microorganisms; Bacteria

9/5/31 (Item 1 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

04503498 82046498
Nicotinamide adenine dinucleotide binding and promotion of enzyme activity: model based on affinity labeling of 3 alpha, 20 beta-hydroxysteroid dehydrogenase with a nucleoside.
Sweet F; Samant BR
Biochemistry (UNITED STATES) Sep 1 1981, 20 (18) p5170-3, ISSN 0006-2960 Journal Code: A0G
Contract/Grant No.: AM-16854; HD-12533
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8203
Subfile: INDEX MEDICUS
5'-[p-(Fluorosulfonyl)benzoyl]adenosine (FSA) was used to affinity-label the NADH binding region of 3 alpha, 20 beta-hydroxysteroid dehydrogenase (3 alpha, 20 beta-HSD) to further test our hypothesis [Sweet, F., & Samant, B. R. (1980) Biochemistry 19, 978-986] that 3 alpha and 20 beta activities occur at the same active site. Incubation of 3 alpha, 20 beta-HSD (0.45 microM) with FSA (125 microM) at pH 7.0 and 0 degrees C caused simultaneous loss of 3 alpha and 20 beta activities by a first-order kinetic process, with t1/2 = 300 min for both activities. Dinucleotides and adenosine mononucleotides which acted as competitive inhibitors protected 3 alpha, 20 beta-HSD against inactivation by FSA in a concentration-dependent manner, in the order reduced nicotinamide dinucleotide phosphate greater than oxidized nicotinamide dinucleotide phosphate greater than adenosine diphosphate-ribose greater than adenosine diphosphate greater than adenosine monophosphate (AMP) greater than adenosine. Oxidized and reduced nicotinamide mononucleotides (NMH and NMNH) and steroid substrates did not protect 3 alpha, 20 beta-HSD against affinity labeling by FSA. Although NMN was not

a competitive inhibitor of 3 alpha, 20 beta-HSD, NMN with AMP and also AMP with NMNH produced positive cooperativity for competitive inhibition of 3 alpha, 20 beta-HSD. The results from FSA affinity labeling of the cofactor region confirm that both 3 alpha and 20 beta activities share the same active site of 3 alpha, 20 beta-HSD and suggest a model of cofactor binding and promotion of enzyme activity. The adenosine 5'-phosphate component anchors the NAD or NADH to an adenosine domain in the cofactor binding region. The nicotinamide nucleotide component then carries out the hydrogen-transfer reaction at a neighboring domain near the steroid binding region.
Tags: Support, U.S. Gov't, P.H.S.
Descriptors: *Adenosine--Analogs and Derivatives--AA; *NAD--Pharmacology --PD; *20-Hydroxysteroid Dehydrogenases--Metabolism--ME; Adenosine --Pharmacology--PD; Affinity Labels; Binding Sites; Binding, Competitive; Chemistry; Enzyme Activation; NAD--Metabolism--ME; 20-Hydroxysteroid Dehydrogenases--Antagonists and Inhibitors--AI
CAS Registry No.: 0 (Affinity Labels); 0 (5'-(4-fluorosulfonylbenzoyl) adenosine); 53-84-9 (NAD); 58-61-7 . (Adenosine)
Enzyme No.: EC 1.1.- (20-Hydroxysteroid Dehydrogenases)

9/5/32 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

04225763 81053763
Spin-labeled polyribonucleotides.
Petrov AI; Sukhorukov BI
Nucleic Acids Res (ENGLAND) Sep 25 1980, 8 (18) p4221-34, ISSN 0301-5610 Journal Code: O8L
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8103
Subfile: INDEX MEDICUS
Poly (U), poly (C) and poly (A) were spin labeled with N-(2,2,5,5-tetramethyl-3-carbonylpyrroline-1-oxyl)-imidazole. This spin label interacts selectively with 2' OH ribose groups of polynucleotides and does not modify the nucleic acid bases. The extent of spin labeling is not dependent upon the nature of the base and is entirely determined by rigidity of the secondary structure of the polynucleotide. The extent of modification for poly (U), poly (C) and poly (A) was 4.2, 1.7 and 1.5 per cent, respectively, the secondary structure of the polynucleotides being practically unchanged. Some physico-chemical properties of the spin-labeled polynucleotides were investigated by ESR spectroscopy. Rotational correlation times of the spin label and activation energy of its motion were calculated.
Descriptors: *Imidazoles; *Polyribonucleotides; *Spin Labels; Electron Spin Resonance Spectroscopy; Nucleic Acid Conformation; Spectrophotometry, Ultraviolet; Structure-Activity

Relationship; Thermodynamics CAS Registry No.: 0 (Imidazoles); 0 (Polyribonucleotides); 0 (Spin Labels); 61463-55-6 (N-(2,2',5,5'-tetramethyl-3-carboxypyrroline-1-oxyl)im idazole)

9/5/33 (Item 3 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

04019801 80130801
Effect of clofibrate on CO2 fixation into glycogen and fatty acids via the leucine catabolism pathway in Tetrahymena.
Blum JJ
Biochim Biophys Acta (NETHERLANDS) Feb 21 1980, 628 (1) p46-56, ISSN 0006-3002 Journal Code: A0W
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8007
Subfile: INDEX MEDICUS
Tetrahymena pyriformis were grown to stationary phase and then incubated for 17 h with 0.21 mM clofibrate, a concentration that causes considerable growth inhibition when added to exponentially growing cells. After the clofibrate treatment, the cells were resuspended in a salt solution and the incorporation of label from [1-(14)C]leucine, [1-(14)C]tyrosine, [1-(14)C]pyruvate, and [14C]bicarbonate into glycogen and into the fatty acid and glycerol moieties of lipids was measured. Each of these substrates yields 14CO2 at an early step of its catabolism, so that incorporation of label into these products is a measure of CO2 fixation. Clofibrate-treated cells incorporated a 2- or more-fold label from leucine, tyrosine, and bicarbonate into the fatty acid moieties of the lipids than did control cells, but only slightly more into the glycerol moiety. Because the only pathway for CO2 fixation into fatty acids in Tetrahymena is via leucine degradation, these results demonstrate that clofibrate increases CO2 fixation via the leucine degradative pathway. Clofibrate treatment reduced 14CO2 formation from [1-(14)C]-labeled glucose, ribose, and glycerol by about 30--40%, but not from [1-(14)C]-labeled glyoxylate, acetate, hexanoate, or octanoate. Incorporation of label from each of these substrates (and from tyrosine and leucine) into glycogen was increased (1.2-fold for glucose, up to 3.2-fold for octanoate) by clofibrate treatment. In addition to the increase in 14CO2 fixation via the leucine catabolic pathway, these results show that clofibrate does not appreciably alter flux through the Krebs cycle or the glyoxylate bypass, but increases glyconeogenic capacity and inhibits glycolytic capacity.
Tags: Animal; Support, U.S. Gov't, P.H.S.
Descriptors: *Carbon Dioxide--Metabolism--ME; *Clofibrate--Pharmacology --PD; *Fatty Acids--Biosynthesis--BI; *Glycogen--Biosynthesis--BI; *Leucine --Metabolism--ME;

*Tetrahymena pyriformis--Metabolism--ME; Acetates --Metabolism--ME; Carbohydrates--Metabolism--ME; Tetrahymena pyriformis --Drug Effects--DE; Tyrosine--Metabolism--ME
CAS Registry No.: 55520-40-6 (Tyrosine); 637-07-0 (Clofibrate); 7005-03-0 (Leucine); 9005-79-2 (Glycogen)

9/5/34 (Item 4 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

03818695 79195695
Adenylation and ADP-ribosylation in the mouse 1-cell embryo.
Young RJ; Sweeney K
J Embryol Exp Morphol (ENGLAND) Jan 1979, 49 p139-52, ISSN 0022-0752 Journal Code: I13
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7910
Subfile: INDEX MEDICUS
The incorporation of [3H]AAadenosine into cold trichloroacetic acid (TCA) insoluble material by the mouse 1-cell embryo has been studied. Incorporation of label was high immediately after fertilization, then decreased over the next 7 h with the sharpest decline occurring 3-5 h after fertilization. A small maximum was observed at the time of pronuclear DNA synthesis. Actinomycin D at a concentration which inhibited the cleavage of 1-cell embryos by 50% had little effect on this incorporation, which in the period 1-6 h post-fertilization was shown by autoradiography to be confined to the ooplasm of the newly fertilized ovum. [3H]Adenosine and poly ([3H]A) were released from embryo RNA labelled 1-3 h after fertilization with [3H]adenosine by digestion with a mixture of ribonucleases A and T1. The poly ([3H]A) segments were hydrolysed by alkali to 3'-[3H]AMP and [3H]adenosine ([3H]AMP/[3H]adenosine = 5/1), and by snake venom phosphodiesterase to 5'-[3H]AMP but very little [3H]adenosine. These results suggest that adenylation of RNA occurs soon after fertilization, that this is a cytoplasmic event, and that most of the newly synthesized poly ([3H]A) segments are joined to pre-existing poly (A) tracts. The unusual polynucleotide, poly (ADP-ribose), identified by its resistance to alkali and the release of 2'-(5''-phosphoribosyl)-5'[3H]AMP on incubation with snake venom phosphodiesterase, was also found in the ribonuclease digest.
Tags: Animal; Female; Support, U.S. Gov't, P.H.S.
Descriptors: *Adenosine--Metabolism--ME; *Embryo--Metabolism--ME; Adenosine Diphosphate--Biosynthesis--BI; Mice; Poly A--Biosynthesis--BI; Pregnancy; Preimplantation Phase; Ribose--Biosynthesis--BI; RNA --Biosynthesis--BI; Time Factors

9/5/35 (Item 5 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

03810970 79187970
Partial base-methylation and other structural differences in the 17 S ribosomal RNA of sycamore cells during growth in cell culture. Miassod R; Cecchini JP
Biochim Biophys Acta (NETHERLANDS) Apr 26 1979, 562 (2) p292-301, ISSN 0006-3002 Journal Code: A0W
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7910
Subfile: INDEX MEDICUS
Sycamore (Acer pseudoplatanus L.) cytoplasmic rRNA was investigated in rapidly dividing cells, cells starting mitosis after the lag phase of growth (4 days) induced by deconditioning of the culture medium and also in growth-arrested cells from 10 day-old cultures deprived of exogenous auxin (i.e. exponential, early exponential and 2,4-dichlorophenoxyacetic acid (2,4-D)-deprived cultures). rRNA was extracted and purified from mixed 14C-labelled exponential cultures and 3H-labelled early exponential cultures. A 14C-labelled exponential culture and a 3H-labelled 2,4-D-deprived culture were analyzed in the same way. The 17 S rRNA molecules from both early exponential and 2,4-D-deprived cultures displayed a lower electrophoretic mobility on polyacrylamide gels than those from exponential cultures. Alkaline and acid hydrolysates of purified 17 S rRNA labelled on the phosphate groups or the methyl groups were analyzed on ion-exchange resins. There was no change in the extent of ribose methylation of the molecule from the three different cultures. However, the base methylation of the 17 S rRNA was decreased in early exponential cultures and in 2,4-D-deprived cultures. Part of the molecules synthesized in early exponential cultures specifically lacked 7-methylguanine, N6-methyladenine and N6,N6-dimethyladenine. The possible significance of these changes in the 17 S rRNA were discussed.
Descriptors: *Plants--Metabolism--ME; *RNA, Ribosomal--Metabolism--ME; Auxins--Pharmacology--PD; Cells, Cultured; Methylation; Mitosis; Plants --Drug Effects--DE; Purines--Metabolism--ME; Pyrimidines--Metabolism--ME; Ribonucleotides--Metabolism--ME; 2,4-Dichlorophenoxyacetic Acid--Pharmacolo gy--PD

9/5/36 (Item 6 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

03467570 78101570
[Use of labeling with 3H6-thymidine in the study of the multiplication of lactobacillus casei immobilized in a polyacrylamide gel]

Application du marquage par la 3H6-thymidine a l'etude de la multiplication de Lactobacillus casei inclus dans un gel de polyacrylamide. Divies C
Ann Microbiol (Paris) (FRANCE) Oct 1977, 128 (3) p349-58, ISSN 0300-5410 Journal Code: 5JY
Languages: FRENCH Summary Languages: ENGLISH
Document type: JOURNAL ARTICLE English Abstract
JOURNAL ANNOUNCEMENT: 7805
Subfile: INDEX MEDICUS
When 3H6-thymidine labelled bacteria (1.2 desintegration per cell/day) are immobilized in a polyacrylamide gel lattice, the decimal reduction time for their malic acid decarboxylase activity is extended to 38 days. Thus, the growth of bacteria in the gel lattice is very poor. The author has evaluated both the DNA turnover rate during the exponential growth phase for the free cells and the DNA specific activity of the population of immobilized cells. The viability of bacteria isolated from the gel lattice decreases with time, as does their thermal stability for malic acid decarboxylase activity. This activity is partially restored after 65 days. With respect to the protein, deoxyribose and ribose cell constituents, the protein/deoxyribose, protein/ribose and deoxyribose/ribose ratios fluctuats considerably with time. These fluctuations are more marked than those observed for the free cells during their different growth phases. Descriptors: *Lactobacillus casei--Growth and Development--GD; *Thymidine --Diagnostic Use--DU; *Tritium--Diagnostic Use--DU; Acrylamides --Pharmacology--PD; Bacterial Proteins--Metabolism--ME; Culture Media; DNA, Bacterial--Metabolism--ME; Lactobacillus casei--Metabolism--ME; RNA, Bacterial--Metabolism--ME

9/5/37 (Item 7 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

03255129 77157129
Adenosine diphosphate ribosylated histones.
Ord MG; Stocken LA
Biochem J (ENGLAND) Mar 1 1977, 161 (3) p583-92, ISSN 0006-2936 Journal Code: 9YO
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7707
Subfile: INDEX MEDICUS
When rat liver nuclei were incubated with [adenine-3H]NAD, besides histone 1, histone 2A and especially histone 2B accepted 3H radioactivity. 3H radioactivity was also found on the non-histone proteins and on the small amounts of histones 1 and 3 released into the supernatant during incubation. [14C]Adenine uptake in vivo by liver and thymus nuclei showed radioactivity in histones 1 and 3. After digestion with Pronase and leucine aminopeptidase 14C- or 32P-labelled histone 3 released a serine

phosphate-containing nucleotide, which on acid hydrolysis yielded ADP-ribose and serine phosphate. Serine phosphate was also found in the material from the nucleotide peaks from histones 2A and 2B. ADP-ribosylated histones 1 and 3 were more easily released from nuclei than their unmodified forms and showed higher [32P]Pi and [3H]lysine uptakes in vivo [Ord & Stocken (1975) FEBS Meet. Proc. 34, 113-125].

Tags: Animal; In Vitro; Male

Descriptors: *Adenosine Diphosphate Sugars--Metabolism--ME; *Histones --Metabolism--ME; *Nucleoside Diphosphate Sugars--Metabolism--ME; Adenine --Metabolism--ME; Binding Sites; Cell Nucleus--Metabolism--ME; Hepatectomy; Liver--Metabolism--ME; NAD--Metabolism--ME; Rats; Ribose--Metabolism--ME; Serine--Analysis--AN; Thymus Gland--Metabolism--ME

9/5/38 (Item 8 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

02984323 76165323

Alkylation of estradiol 17beta-dehydrogenase from human placenta with 3-chloroacetylpyridine--adenine dinucleotide.

Biellmann JF; Branlant G; Nicolas JC; Pons M; Descomps B; Crastes de Paulet A

Eur J Biochem (GERMANY, WEST) Apr 1 1976, 63 (2) p477-81, ISSN 0014-2956 Journal Code: EMZ

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 7608

Subfile: INDEX MEDICUS

3-Chloroacetylpyridine--adenine dinucleotide, which is active as a hydride acceptor (Km = 0.6 mM), inactivates and alkylates estradiol 17beta-dehydrogenase. The kinetics of inactivation by 3-chloroacetylpyridine--adenine dinucleotide and the absence of inactivation by 3-chloroacetylpyridine ribose phosphate show that the alkylation follows the formation of a binary complex (Kd = 4.5 X 10(-4) M). Studies of the labelling by 3-chloro[2-14C]acetylpyridine--adenine dinucleotide and the rate of alkylation as a function of pH, give evidence to the alkylation of a cysteine, the stoichiometry being one mole per subunit. The 14C label is distributed between three chymotryptic peptides, one of which accounts for about 50% of the radioactive label. Tags: Female; Human

Descriptors: *Estradiol Dehydrogenases--Antagonists and Inhibitors--AI; *Hydroxysteroid Dehydrogenases--Antagonists and Inhibitors--AI; *NAD --Analogs and Derivatives--AA; *Placenta--Enzymology--EN; Binding Sites; Hydrogen-Ion Concentration; Kinetics; Mathematics; Pregnancy; Protein Binding

9/5/39 (Item 9 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

02911007 76092007
Properties of the ribose-ring-opened adenine nucleotide, 2,2'(1-(9-adenyl)-1'-(tri-,diphosphoryl-oxymethyl))-dihydroxydiethylether in mitochondrial adenine-nucleotide translocation.
Boos KS; Schlimme E; Bojanovski D; Lamprecht W
Eur J Biochem (GERMANY, WEST) Dec 15 1975, 60 (2) p451-8, ISSN 0014-2956 Journal Code: EMZ
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7605
Subfile: INDEX MEDICUS
(Adenine-14C) or (gamma-32P)-labelled 2,2'[1-(9-adenyl)-1'-(tri-, diphosphoryl-oxymethyl]-dihydroxydiethylether (rroANP) was obtained from ANP by cleavage of the C-2--C-3' bond by sodium periodate oxidation and subsequent borohydride reduction. Binding of rroANP to rat liver mitochondria revealed carrier-linked (atractyloside-sensitive) and unspecific (atractyloside-insensitive) binding but no transfer across the inner mitochondrial membrane. Kinetic data indicate rroANP as a competitive inhibitor for ANP uptake with Ki = 9.3 X 10(-5) M. Experimental rroANP confirmed that an intact adenine base and three anio.nic charges of the phosphate chain are essential for the recognition between ANP-carrier and nucleotide but insufficient for the induction of a transmembrane ANP exchange. In addition mobilisation of the carrier-nucleotide complex requires an intact ribofuranoside ring system.
Tags: Animal; Male
Descriptors: *Adenosine Triphosphate--Analogs and Derivatives--AA; *Mitochondria, Liver--Metabolism--ME; Adenine Nucleotides --Chemical Synthesis--CS; Adenosine Diphosphate--Analogs and Derivatives--AA; Adenosine Diphosphate--Metabolism--ME; Adenosine Monophosphate--Analogs and Derivatives--AA; Adenosine Monophosphate--Metabolism--ME; Adenosine Triphosphate--Metabolism--ME; Binding Sites; Biological Transport; Kinetics ; Molecular Conformation; Nuclear Magnetic Resonance; Rats; Structure-Activity Relationship; Translocation (Genetics)

9/5/40 (Item 10 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

02709815 75116815
Influenza virion RNA-dependent RNA polymerase: stimulation by guanosine and related compounds.
McGeoch D; Kitron N

J Virol (UNITED STATES) Apr 1975, 15 (4) p686-95, ISSN 0022-538X Journal Code: KCV
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7507
Subfile: INDEX MEDICUS
The activity of RNA-dependent RNA polymerase of several influenza viruses is stimulated by guanosine. Depending upon the virus strain used, the stimulation of initial reaction rate is up to 10-fold. 5'-GMP, 3',5'-cyclic GMP, and 5'-GDP show lesser stimulation effects. No other nucleosides of 5'-NMPs stimulate, but the dinucleoside monophosphates GpG and GpC show large stimulations. We present evidence that the stimulation represents preferential initiation of genome complementary RNA chains with guanosine: (i) [3-H] guanosine is incorporated specifically at the 5'terminus of RNA in polymerase reaction mixes in vitro. (ii) This incorporation reaction has several properties similar to those of the virion polymerase elongation reaction. (iii) RNA made in the stimulated reaction behaves as complementary RNA in annealing kinetic studies, as does RNA labeled with [3-H]guanosine.
Descriptors: *Guanosine--Pharmacology--PD; *Orthomyxoviridae--Enzymology --EN; *RNA Polymerases--Metabolism--ME; Cyclic GMP--Pharmacology--PD; Dose-Response Relationship, Drug; Enzyme Induction; Guanine Nucleotides --Pharmacology--PD; Guanosine--Analogs and Derivatives--AA; Orthomyxovirida e--Drug Effects--DE; Ribose--Pharmacology--PD; RNA; Time Factors; Tritium

9/5/41 (Item 11 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

02665886 75072886
Interrelationships between synthesis and methylation of ribosomal RNA in isolated Novikoff Tumor nucleoli.
Liau MC; Hurlbert RB
Biochemistry (UNITED STATES) Jan 14 1975, 14 (1) p127-34, ISSN 0006-2960 Journal Code: A0G
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7505
Subfile: INDEX MEDICUS
Nucleoli isolated from Novikoff hepatoma cells of the rat were previously shown to carry out synthesis of predominantly ribosomal precursor RNA and methylation of this RNA in vitro. In order to develop in vitro systems for further detailed study of these processes and their interrelationships, isolated nucleoli were incubated in a complete RNA-synthesizing medium using (5-3H)cytidine 5'-triphosphate or S-adenoxyl(methyl-3H)methionine to measure the activities of RNA synthesis and methylation, respectively, under the same reaction conditions. Methylation of the ribose of the nascent ribosomal precursor RNA predominated. It occurred in

close coordination with the transcriptional step by RNA polymerase as shown by the kinetic data, the analysis of labeled RNA in sucrose gradients, the inhibition by increased ionic strength or actinomycin D, and the release of labeled nucleotides by a 3'-exonuclease, venom phosphodiesterase. Methylation of the RNA bases occurred more slowly, continued longer after transcription ceased, and appeared to follow later in the processing of the RNA. Certain divalent cations (Mg2+, Mn2+, and Ca2+ at higher concentrations, and Zn2+ and Cu2+) inhibited both RNA synthesis and methylation to similar extents. RNase inhibitors (bentonite and dextran sulfate) at low concentration inhibited methylation while stimulating RNA synthesis, and pyrophosphate greatly decreased RNA synthesis with relatively little effect on methylation. These results indicated that RNA polymerase and ribosomal RNA methylases can function independently despite their close relationship. An exogenous substrate for the nucleolar rRNA methylases was found: nuclear RNA prepared from Novikoff hepatoma cells, cultured in the absence of methionine, served as a good substrate for methylation of both ribose and bases. Other exogenous RNAs, including cytoplasmic ribosomal RNA from these methionine-starved cells, nucleolar RNA from normal cells, and wheat germ ribosomal RNA were almost devoid of methyl-acceptor activity. A description of these parameters helps establish isolated nucleoli as a suitable system for further study of interaction of RNA polymerase, methylases, and nucleases in control of synthesis of ribosomal RNA.

Tags: Animal; Support, U.S. Gov't, P.H.S.

Descriptors: *Carcinoma, Hepatocellular--Metabolism--ME; *Cell Nucleolus --Metabolism--ME; *RNA, Neoplasm--Metabolism--ME; *RNA, Ribosomal --Metabolism--ME; *RNA, Transfer--Metabolism--ME; Cations, Divalent; Cell Nucleolus--Drug Effects--DE; Liver Neoplasms; Methylation; Neoplasms, Experimental--Metabolism--ME; Rats; RNA Polymerases--Metabolism--ME; RNA, Transfer, Methyltransferases--Metabolism--ME; Transcription, Genetic--Drug Effects--DE

9/5/42 (Item 12 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

01114481 69259481

Formation of inosine triphosphate and of 14C-labeled 2,6-diaminopurine ribonucleoside di- and triphosphates in stored human erythrocytes. Blair DG; Dommasch M

Transfusion (UNITED STATES) Jul-Aug 1969, 9 (4) p198-202, ISSN 0041-1132 Journal Code: WDN

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 6911

Subfile: INDEX MEDICUS

Tags: Human

Descriptors: *Blood Preservation; *Erythrocytes--Metabolism--ME; *Nucleosides--Metabolism--ME; *Phosphates--Metabolism--ME; *Purines --Metabolism--ME; *Ribose--Metabolism--ME; Carbon Isotopes; Chromatography; Fluorescence; Spectrophotometry

9/5/43 (Item 13 from file: 155)
DIALOG(R)File 155:MEDLINE(R)

01030074 69175074
Analysis of nucleic acid derivatives at the subnanomole level. 3. A tritium labeling procedure for quantitative analysis of ribose derivatives. Randerath K; Randerath E
Anal Biochem (UNITED STATES) Apr 4 1969, 28 (1) p110-8, ISSN 0003-2697 Journal Code: 4NK
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 6908
Subfile: INDEX MEDICUS
Descriptors: *Nucleosides--Analysis--AN; *Ribose--Analysis--AN; Adenine; Boron Compounds; Chromatography, Thin Layer; Cytosine; Guanine; Methods; Microchemistry; Oxidation-Reduction; Periodic Acid; Polynucleotides --Analysis--AN; Spectrophotometry; Tritium; Uracil

Set	Items	Description
S1	12481	AU=ENGELHARDT? OR AU=RABBANI? OR AU=KLINE? OR AU=STAVRIANO-POULOS? OR AU=KIRTIKAR?
S2	28913	2(3N)LABEL? OR 3(3N)LABEL?
S3	22407	RIBOSE OR DEOXYRIBOSE
S4	170	S2 AND S3
S5	0	S1 AND S4
S6	127	S4 NOT (PY=1996 OR PY=1995 OR PY=1994 OR PY=1993 OR PY=1992 OR PY=1991)
S7	57	S6 NOT (PY=1990 OR PY=1989 OR PY=1988 OR PY=1987 OR PY=1986 OR PY=1985 OR PY=1984 OR PY=1983)
S8	54	RD (unique items)
S9	43	S8 NOT PY=1982

?logoff

23jun96 14:32:56 User208660 Session D508.2
$1.17 0.013 Hrs File399
$7.80 4 Type(s) in Format 5
$7.80 4 Types
$8.97 Estimated cost File399
$12.84 0.214 Hrs File5
$35.10 26 Type(s) in Format 5
$35.10 26 Types
$47.94 Estimated cost File5
$1.44 0.012 Hrs File25
$1.44 Estimated cost File25

```
            $0.33    0.011 Hrs File155
               $2.21  13 Type(s) in Format  5
            $2.21  13 Types
      $2.54 Estimated cost File155
            $0.36    0.003 Hrs File348
      $0.36 Estimated cost File348
            $1.33    0.006 Hrs File350
      $1.33 Estimated cost File350
            $3.11    0.014 Hrs File351
      $3.11 Estimated cost File351
            $0.53    0.003 Hrs File357
      $0.53 Estimated cost File357
            $0.18    0.002 Hrs File358
      $0.18 Estimated cost File358
            OneSearch, 9 files,  0.283 Hrs FileO+{
OK
ATH0

OK
```